

THE ZIKA VIRUS: COORDINATION OF A MULTI- AGENCY RESPONSE

HEARING BEFORE THE SUBCOMMITTEE ON TRANSPORTATION AND PUBLIC ASSETS OF THE COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM HOUSE OF REPRESENTATIVES ONE HUNDRED FOURTEENTH CONGRESS SECOND SESSION

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THE ZIKA VIRUS: COORDINATION OF A MULTI-AGENCY RESPONSE

Wednesday, February 24, 2016

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON TRANSPORTATION AND PUBLIC
ASSETS,
COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM,
Washington, D.C.

The subcommittee met, pursuant to call, at 2:05 p.m., in Room 2154, Rayburn House Office Building, Hon. John L. Mica [chairman of the subcommittee] presiding.

Present: Representatives Mica, Duncan, Amash, Massie, Grothman, Duckworth, DeSaulnier, and Boyle.

Mr. MICA. Good afternoon. And I'd like to call the Subcommittee on Transportation and Public Assets to order, this hearing. And this is a subcommittee of the Committee on Oversight and Government Reform.

Today, we are conducting a hearing on the Zika virus, and we are looking at the coordination of a multi-agency response to that virus. I'm very pleased to have everyone joining us today. The order of business will be as follows: We will have opening statements; myself and Ms. Duckworth are here and other members joining us. And we will then hear from our witnesses. And from the witnesses, we will hear your testimony, and then we'll go into questions. That will be the order of business.

So, without objection, the chair is authorized to declare a recess at any time. And I will start with my opening statement, and then I will yield to Ms. Duckworth.

Again, I want to thank everyone for attending. There are probably some people that didn't want us to hold this hearing, but I think it is very necessary that we do conduct it. I think that the Zika virus is probably one of the more difficult health challenges that the Nation and the world have faced probably since the Ebola crisis. And unlike that particular crisis, there is some very good news to report in this hearing, and the purpose of the hearing is also to hear from some of those involved in making certain that the public health, welfare, and safety is preserved while we face this possible epidemic.

And I might say, this isn't something just facing the United States; it's facing the world. So it's spread, again, we know, across the many continents. And we have international events, like the Olympics this summer in Brazil. We want to make certain that American travelers there are protected. And I might say, also, we have American personnel throughout the infected area and the

world who are our responsibility to make sure they are safe and secure. Many of them are abroad serving the United States in diplomatic posts, with the military, and others, and we want to make sure that those individuals that we're responsible for are also protected.

I'm pleased, too, with the World Health Organization. You've heard me from this dais raise some serious questions during Ebola, that they did not act to alert the public and declare the seriousness of Ebola at the time. That is not the case here. They have acted. They have been proactive.

I'm also pleased that we have had a very good response, both from the Federal level and the State level and other agencies in government. And we need to keep it that way, and we need to keep going forward.

Today, the purpose of this hearing is to see where we are and what we have done and where we need to go and how we can keep this under control.

I'm very pleased to have a representative from my State, which has taken the lead, and Governor Scott and others. We have our surgeon general of Florida with us. And we'll hear from, again, NIH. And they have done a great job. The Centers for Disease Control, we'll hear where they are and get an opportunity to get an update on a great world event which we're looking at in Brazil later this year.

Right now—and I want to say this and make this very clear—there has been no detected Zika infection from an insect or mosquito in the United States of America. No transmission that I'm aware of. Most of what we found so far are individuals who have traveled somewhere else and come into the United States.

This isn't a South United States problem. In fact, right now—and, look, we have a chart we can show later: I think as far as Wisconsin in the United States, and—what is it?—23 States that have now had cases where they have determined that someone was infected with the Zika virus.

So we don't have that infection from mosquitos in the United States, but we do have people coming in outside who have been infected with that disease.

So we still have a long way to go in the detection process. We don't have a vaccination available. We don't know all the connections, and we'll have questions and some directions about where we're going to look at how we can go after the disease, either for vaccination or for treatment.

The numbers that we have seen so far are, again, somewhat limited in the United States, but, again, getting a head start on it—in Florida, we've had 28 cases, and I think two of my counties with a single case. I just had lunch with the local health director, and I thought that was very informative, because I wanted to hear from him how things that we are doing here have filtered down to the local level. And I will say that report is also good.

But they do face challenges. They want to make certain that they have the test kits available. They want to make certain that the testing is available. They want to know where to go next. And some of that has been provided. And the State of Florida acted in early February, the Governor and others, and they have been in close

contact with the local officials, which I think is extremely important.

There's some simple things that can be done, and we know what they are: using insecticides, using mosquito repellent, staying in air-conditioned locations. And that, again, is where people are getting the infection. But if we do have the problem in the United States, we want to make certain that people are aware of the risk that they face and the simple solutions to tackle this. It's just like mosquitos that we have from coast to coast and from border to border.

While the CDC remains hesitant to confirm some of the links—we'll hear more about that—experts are confident that Zika is causing some outcomes that we've seen, and we'll talk about them. The most notable and at risk are women and pregnant women, and they seem to have—or seem to be fairly certain of the link there. We'll find out more about that and other possible links to individuals that may cause them serious health damage.

The administration—I woke up at 3 o'clock in the morning. I have this folder and fell asleep reading it. I woke up at 3 and finished it last night. And I did read it. The administration, last week, the President sent a communication to the Members of Congress and asking for \$1.8 billion request for emergency action. I also read where Mr. Rogers, our chairman of Appropriations, said we happen to have almost the exact amount left over from Ebola and the possibility of using that. I want to make certain that the funds are available, particularly for the research for finding out anything that can stop this, either with a mosquito or keep people safe with possible vaccination, wherever we are going to go, but that also needs funding ASAP. And we want to make certain that those funds are available.

I'll have some questions about the money flow, because money usually solves most of our problems.

The situation is rapidly developing and changing, and Americans have concerns, but they need to know that their government on each level, Federal, State, and local, are making certain that the challenge is being met, and we want to ensure the public that we're all receiving the latest information and coordinating in good fashion so that we can do the best.

The United States is fortunate. We have the world's most advanced healthcare system in the United States. It's impressive. We want to keep it that way and make certain that we're well coordinated, we use common sense, and that we'll be able to contain the spread of this virus and be well-equipped for any future threats it may pose.

So I'll look forward to hearing from the panel. I welcome our witnesses.

I would like to turn to our ranking member, the gentlelady from Illinois, Ms. Duckworth, for her opening comment.

Ms. DUCKWORTH. Thank you, Mr. Chairman.

And thank you to our expert witnesses for being here today. Today's hearing is an important opportunity to examine the effectiveness of our current efforts to combat the Zika virus and to ensure that the interagency response is efficiently coordinated. There have been 82 reported cases of Zika in the United States, including four

cases in my home State of Illinois. To date, these cases have been limited to travelers returning to the United States from affected countries or from individuals who have had sexual relationships with returning travelers.

As a new mother, I deeply understand the public's concern over the Zika virus. The recent outbreak of this public health threat in Brazil has shed light on a disease of which most Americans are not aware. And as the head of the Centers for Disease Control Prevention, Dr. Tom Frieden, recently explained, even the scientific community, there is an astounding lack of literature examining the Zika virus.

Fortunately, our public health community is working hard to change this. Since the last major Zika outbreak in 2007, the CDC developed a test to detect Zika in the first week of an illness or in a sample taken from an infected child. More recently, the CDC activated its Emergency Operations Center last month in response to this latest outbreak, and on February 1, the World Health Organization designated the outbreak a public health emergency of international concern.

Our public health system has acted quickly to increase its surveillance and diagnosis capabilities in affected areas and to ramp up what had been very limited scientific research on this virus. I want to thank the CDC and NIH for their very hard work and rapid response in this case. However, much work remains to be done so that we can better understand the Zika virus and develop proven strategies to treat affected individuals to contain the virus' spread and, ultimately, to develop effective therapies and vaccines that would neutralize the threat entirely.

Further, we must work diligently to assess every available control measure and adopt the most effective policies to prevent the virus from entering the mosquito population in the continental United States.

Equally important, in light of what appears to be the Zika virus' capacity to cause severe birth defects, we must also provide safe, effective, and affordable contraception to individuals living in areas of risk for Zika transmission. This includes taking actions to strengthen the healthcare services in areas where mosquito populations are already carrying Zika, such as Puerto Rico and the Virgin Islands.

Zika, like the pandemics before it, knows no boundaries. Our contributions to public health efforts in Central and South America are first and foremost the right thing to do. But they are also critical to controlling the spread of this disease. That's why I fully support the President's proposal for \$1.9 billion in emergency funding for domestic and international response to Zika. I also emphasize that continued consistent investment in public health remains critical in periods of crisis as well as in periods of calm. Our public health agencies are able to mobilize with agility today because they have built on decades of institutional knowledge, capacity, and lessons learned to anticipate and better respond to emerging threats, some of which we've never even imagined. The emergence of Zika should serve as a warning that we must continue to invest in our world class public health infrastructure to defend us both against this threat and the viruses that will surely appear in the future.

Until we have more answers, we all must remain vigilant against Zika. We must all take reasonable precautions so that we give the next generation the best chance at full, healthy lives. This requires the cooperation of both men and women to prevent transmissions to other humans or to mosquitos in the continental United States. I urge everyone to proceed with caution to protect themselves, their partners, their families, and their communities. I really look forward to the testimony of our witnesses.

And thank you, Mr. Chairman, for holding this hearing today.

I yield back.

Mr. MICA. I thank the gentlelady.

And if no other members have opening statements, what we'll do is, with unanimous consent, we'll hold the record open for 5 legislative days.

Did you have an opening statement?

Mr. BOYLE. That's fine.

Mr. MICA. Okay.

But we will hold, with unanimous consent, the record open for 5 legislative days for members who would like to submit a written statement, and we may be asking our witnesses questions in addition to what's done in this formal setting. And they will also be made part of the record.

Without objection, so ordered.

Okay. Now we'll welcome our—and recognize our panel of witnesses today. And I'm pleased to welcome Dr. Anne Schuchat, and she is the Principal Deputy Director of the Centers for Disease Control and Prevention.

Dr. Anthony Fauci, and he is the Director of the National Institute of Allergy and Infectious Diseases at the National Institutes of Health.

Welcome back, Doctor.

Dr. John Armstrong, and he is the surgeon general and secretary of health for the State of Florida.

And then we have Dr. Bill Moreau, and he is the managing director for sports medicine for the United States Olympic Committee.

I want to welcome all of you. And pursuant to the committee rules—and this is an investigation, an Oversight Subcommittee, a committee of Congress.

I'll ask you to stand and be sworn. Raise your right hand, please.

Do you solemnly swear or affirm that the testimony you are about to give before this subcommittee of Congress is the whole truth and nothing but the truth?

Let the record reflect that the witnesses have answered in the affirmative.

And while Dr. Fauci has been here before, and maybe others, it's customary to give a 5-minute statement, and if you have additional information or data you'd like to be made part of the official record of these proceedings, ask through the chair or a member that they be included, and we'll do that.

So we will start right out. I want to welcome, again, the Deputy Director of the Centers for Disease Control, Dr. Anne Schuchat.

Welcome, and you're recognized.

WITNESS STATEMENTS**STATEMENT OF ANNE SCHUCHAT, M.D.**

Dr. SCHUCHAT. Thank you so much, Chairman Mica, Congresswoman Duckworth, and members of the subcommittee.

CDC and partners here and overseas are working around the clock to find out as much as we can as quickly as we can, and we are learning more every single day. To accomplish this, CDC is coordinating here at home with others across the Department of Health and Human Services, including my colleague, Dr. Fauci, and we're working with partners across the U.S. Government as well as with other parts of the society to make sure that we communicate with travelers and healthcare providers, update travel alerts and clinical guidance, develop improved mosquito control methods, and we're coordinating internationally with the World Health Organization and Pan American Health Organization on the Zika response. We're working directly with Brazil and other nations, and we're all trying to learn more about Zika and help prevent its spread.

I want to begin with three key points. This is a dynamic situation. It's changing very frequently. We are committed to share what we know when we know it and to revise and adapt to the new information.

Secondly, emerging infections come from nature, and they can be challenging. A new syndrome like this can be scary, particularly for vulnerable pregnant women. But we can and should do more to detect, respond, and prevent these new infectious threats.

Thirdly, CDC has a unique decades-long experience in core public health functions that are critical for this kind of response. We work on emerging pathogens like Zika. We work on disease detection, lab capacity, epidemiology and surveillance, response and partnership with State and local governments and with other countries.

What are the facts? Well, we've known about this virus for a long time, but only in 2007 was the first outbreak recognized. We think the virus usually causes a mild syndrome, but we've recently learned that it appears to be associated with serious birth defects, microcephaly and possibly others. There may also be links with a neurologic problem, Guillain-Barre syndrome. It's principally spread by the Aedes mosquito, a very difficult mosquito to control, and that is one of our challenges.

Where is this going? There have already been more than a million cases in Brazil. A number of countries in Latin America are seeing sharp increases in Zika virus infections. We expect many travelers returning to the United States to have Zika virus infection, but we are doing what we can to prevent the severe complications. That's why we issued the guidance for pregnant women to avoid traveling to areas where the virus is spreading, because at this time avoiding the virus and the mosquitos that spread it is the best way to protect a pregnancy.

We expect there may be a little bit of local transmission in the Southern United States, because the mosquito that carries this virus is resident in those communities. We don't right now expect a lot of local transmission, but we need to be ready for it, one of the reasons that the Florida Governor did declare that emergency.

We think that other countries are the place where critical information can be learned, and that's why we're working side by side with our colleagues in Brazil and Colombia to learn as much as we can and as quickly as we can. CDC has been very busy. As you've heard, we've activated our Emergency Operations Center to our highest level. We've actually got more than 500 people working on this response, not just our infectious disease experts and our insect experts, but also our experts in birth defects, in communication, in travel health. We have developed and distributed kits for laboratory detection, and we're working with State and local health departments so that they can deploy those tests. We're working on the ground in Brazil and Colombia trying to uncover the mysteries of those links that you were talking about.

While we're doing much already, Zika requires a robust, all-of-government response, as put forward in the emergency Zika funding request.

CDC's part of that request was to provide support to Puerto Rico and other areas in the United States, the territories where the virus is already spreading; secondly, for the rest of the U.S., where the travelers may be returning and where laboratory capacity and communication is going to be vital as well as insect monitoring; and, thirdly, for our international partners, where we do have a chance to learn as much as we can and to protect Americans in that way.

This funding would support CDC's work in prevention, detection, and response. To conclude, we must act swiftly to address the challenge of Zika virus. We are learning more every day, but there's much more to learn and much more to do. And CDC will continue to work collaboratively across HHS and with other departments and with Congress to ensure an effective response.

Thank you.

[Prepared statement of Dr. Schuchat follows:]

February 24, 2016

Witness: Anne Schuchat, MD (RADM, USPHS)

Testimony before the House Committee on Oversight and Government Reform Subcommittee on Transportation and Public Assets

Introduction

Good afternoon Chairman Mica, Ranking Member Duckworth, and members of the Subcommittee. Thank you for the opportunity to testify before you today on Centers for Disease Control and Prevention's (CDC's) efforts to prepare for and respond to the Zika virus outbreak, which threatens the United States and the rest of the Americas. The Administration has requested approximately \$1.9 billion in emergency funding to respond to the Zika virus outbreak, including \$828 million for CDC, in support of both the domestic and international response, with particular attention to emergency assistance to the Commonwealth of Puerto Rico and other U.S. Territories and States with local transmission of Zika virus.

CDC is the nation's health protection agency, working 24-7 to save lives and protect people against unpredictable threats such as the Zika virus. Nature is a formidable adversary, and Zika is our newest threat, particularly to pregnant women. CDC has some of the world's leading experts both in diseases spread by mosquitos and in birth defects. We must act swiftly to stop the spread of the Zika virus, both domestically and globally. While we are learning more about the Zika virus every day, there are many things we do not know yet about Zika. These include our understanding of the spectrum of effects of Zika infection during pregnancy, the risk the virus may play in microcephaly, Guillain-Barré syndrome and other possible complications, the duration of Zika infectivity in semen, and determining what other factors may play a part in the consequences associated with the virus. In addition to answering these questions, we are also working to accelerate optimal mosquito control strategies, improve testing and assure preparedness for rapid detection, control, and prevention within the United States and U.S. territories.

We are making advancements in these areas and will need the additional requested funding to do so. We are figuring out more about Zika literally every day, and will share information – and adjust our guidelines and recommendations – as we learn more. That is the nature of a scientific response to an emerging health threat. The doctors, scientists, entomologists, and others at CDC are working nonstop to protect Americans from this and other health threats. We have already made significant progress identifying the Zika virus in brain tissue of affected deceased infants, developing new diagnostic tests, issuing guidance, conducting epidemiological investigations along with affected countries, and improving monitoring and surveillance in the United States including in the Commonwealth of Puerto Rico and the other U.S. territories. Much of what we know about Zika and similar viruses today is based on the work that's been done by CDC scientists. But there are still many things we do not yet know. We will continue to use the best of modern science to protect the American people. I

understand that Zika virus and the emergence of serious birth defects cause concern. We are committed to providing the American people with the most accurate and timely information about Zika virus and the current outbreak.

CDC is working in collaboration with other components of the Department of Health and Human Services (HHS), including the Office of the Assistant Secretary for Preparedness and Response (ASPR) and its Biomedical Advanced Research and Development Authority (BARDA), the National Institutes of Health, and the Food and Drug Administration (FDA). We are also working with partners across the U.S. Government to communicate with travelers and health care providers, update travel alerts and clinical guidance, and develop improved mosquito-control methods.

Zika and its history

Zika is a flavivirus, which is closely related to dengue, yellow fever and West Nile viruses. Zika virus is primarily spread to people through the bite of infected *Aedes* species mosquitos, particularly *Aedes aegypti*. The *Aedes aegypti* mosquitos, which also transmit dengue and chikungunya viruses, are extremely difficult to control. They bite during the day, indoors and outdoors, and they preferentially feed on humans. And they need only the smallest bit of water to breed – just a bottle cap is enough. The mosquitos become infected when they bite a person with Zika virus. These infected mosquitos can then spread the virus to other people through bites. Case reports of other modes of transmission include spread through sexual transmission and blood transfusion. Of great concern, Zika virus infection in a pregnant woman has been linked to issues in fetal development, and the virus has been detected in association with fatal brain malformation in newborns as well as in miscarriages.

While its adverse effects were unforeseen, Zika is not a new virus. It was first recognized in 1947 and has caused occasional illness in Africa and Asia, but the first outbreak we know of occurred in 2007 in the small Pacific island of Yap. Last May, the first local transmission of Zika in the Americas was reported in Brazil, and by the end of 2015, Brazilian authorities estimated that the outbreak there involved perhaps a million suspected cases of Zika virus. In recent months, the virus has spread rapidly throughout Latin America and the Caribbean, as well as to parts of the Pacific. As of February 18, 2016, 32 countries and territories, including the Commonwealth of Puerto Rico, a United States Territory, the U.S. Virgin Islands, and American Samoa have reported local transmission of the Zika virus.

Symptoms and Adverse Outcomes

Many people exposed to Zika virus will have only mild symptoms - such as fever, rash, joint pain, and red eyes or conjunctivitis - that will last no more than a week. In past outbreaks, about four out of five people infected with Zika appear not to have had symptoms at all, although we do not know if that is the pattern in this outbreak.

Increasing evidence suggests that Zika virus infection may be associated with more serious health outcomes. In October 2015, Brazilian authorities recognized a concerning increase in microcephaly, which has occurred in close sequence to Brazil's outbreak of Zika virus. Microcephaly is a usually rare, serious condition where a baby's head is smaller than expected based on age and sex. Microcephaly is not a diagnosis in and of itself, but a sign that the brain did not develop as it should in the womb. Babies with microcephaly can have a range of problems, including seizures, developmental delay, feeding problems and hearing loss. In some cases these problems can be fatal.

Laboratory tests at CDC strongly suggest a link between Zika virus infection during pregnancy and microcephaly. We do not fully understand the nature of this relationship, or if there are important cofactors. We also do not know what, if any, other outcomes might be associated with Zika infection during pregnancy among infants who do not have microcephaly. Microcephaly in infants can be devastating to the affected families, and this ongoing outbreak is concerning to everyone, especially for pregnant women, and their families who may travel to or live in the infected areas. The association between Zika virus and microcephaly is unexpected. A new infectious cause of fetal malformations has not been identified in decades. Zika virus spread in the Americas and its effect on pregnancy are developments that we are working with partners to better understand.

Our key priority at this point is to reduce the risk to pregnant women of Zika virus infection. Given the potential risks associated with maternal Zika infection, prevention is key for this response, with a parallel approach of acting based on what we know now and, at the same time, discovering more so that we can better prevent adverse health outcomes in the future. That's why, during the same week we identified Zika in brain tissue specimens from affected infants, we issued a warning to advise pregnant women not to travel to affected areas. That's why we are working intensively with the Commonwealth of Puerto Rico and other areas to get support to women who are or who may become pregnant and do what we can to reduce the threat of Zika there. And that's why we are engaging in studies with international partners so that we can more fully understand the magnitude of risk and the range of outcomes associated with Zika virus infection during pregnancy.

Health authorities in Brazil and elsewhere have also reported an increase in suspected cases of Guillain-Barré syndrome, a rare neurologic disorder in which a person's own immune system damages nerve cells, leading to nerve damage or paralysis that lasts for several weeks or several months. Most people fully recover, but it can take a few months or even years to do so. Some people with Guillain-Barré syndrome have permanent damage and, in rare cases, people have died. It is difficult to determine if any particular pathogen "caused" or "triggered" Guillain-Barré syndrome. Currently, we do not know if Zika virus infection causes Guillain-Barré syndrome. However, the development of Guillain-Barré syndrome is a recognized after-effect of a variety of different infections. CDC is currently collaborating with public health officials in Brazil to investigate whether there is any causal link between Zika infection and Guillain-Barré syndrome.

Domestic Activities

While we are working to better understand these health outcomes, transmission, diagnostics, and mosquito control, CDC is moving quickly to respond. We have moved our Emergency Operations Center to the highest alert level for Zika virus to further enhance our response activities in areas with current local transmission and to accelerate preparedness efforts in anticipation of local transmission in the continental United States.

For the Commonwealth of Puerto Rico as well as the U.S. Virgin Islands and American Samoa, a surge in resources is urgently needed. The population of *Aedes aegypti* mosquitos is widespread on these islands, protective environmental factors such as window screens are not as prominent, and the density of people puts people there at high risk for transmission. All three areas have already reported local Zika transmission, with Puerto Rico alone reporting at least 30 cases. Furthermore, recent outbreaks of dengue and chikungunya suggest that Zika virus may spread extensively and rapidly in these areas. CDC has deployed staff to the U.S. Virgin Islands, American Samoa, and Puerto Rico to support response activities and provide technical assistance to health departments there. CDC and the CDC Foundation are also partnering to create Zika prevention kits. Containing educational materials, and initial supplies of prevention tools such as insect repellent, the purpose of these kits is to help pregnant women in areas with local Zika transmission protect themselves and their pregnancies. Five thousand of these kits have been dispatched to the Commonwealth of Puerto Rico, the U.S. Virgin Islands, and American Samoa; and CDC plans to distribute more than 45,000 kits to these areas in the future.

While we have not yet seen transmission of the Zika virus by mosquitos within the continental United States, we expect many returning travelers will have Zika infection. As a potential benchmark, we received reports of 3,270 travelers from 49 states with laboratory confirmed cases of chikungunya infection in 2014 and 2015. There are about 40 million people travelling between the continental U.S. and Zika-affected areas each year. Therefore, all U.S. jurisdictions must be prepared to evaluate, test, and manage patients with potential Zika virus infection, particularly pregnant women. Furthermore, *Aedes aegypti* is found in many areas of the United States, raising the risk of local transmission. The most recent data available suggest that *Aedes aegypti* are found in 13 states and *Aedes albopictus* are found in 31 states and the District of Columbia. Recent chikungunya and dengue clusters in the United States suggest that Zika outbreaks in the U.S. mainland may be relatively small and localized due to protective factors like window screens and less dense living conditions; however, any local outbreaks will be of deep concern to the people living there, and we must be prepared for different scenarios including more extensive transmission risk.

CDC is working with health departments across the country to ensure coordination and to expand capacity for detecting and responding to Zika virus. Surveillance is essential to monitor and quickly identify areas with local transmission. We conduct multi-faceted surveillance for arboviruses, including Zika, through ArboNET, an integrated network which funds, through our Epidemiology and Laboratory Capacity cooperative agreements, staff in 49 states, the Commonwealth of Puerto Rico, and six large municipalities to conduct human case

investigations, collect and test mosquitos, and perform laboratory analysis on arboviruses including Zika. Zika virus is now a nationally notifiable disease, meaning states report the virus to CDC, which will aid Zika surveillance efforts. CDC is also working with several states and the Commonwealth of Puerto Rico to determine a baseline prevalence of microcephaly so that any increase, should it occur, can be quickly and accurately identified.

With support from the President's emergency request, CDC will build on its current efforts to provide financial and technical resources to states and territories through its cooperative agreements to strengthen their capacity to prepare for and respond to emerging insect-borne threats such as Zika virus. These resources may be used to help health departments expand their capability to manage cases of local Zika virus transmission in their areas and to implement community education and prevention programs to reduce human-mosquito contact and subsequently, the risk of Zika transmission. Resources will also be used to implement mosquito control strategies, including mosquito surveillance. Current mosquito surveillance capacity is uneven across the country, which makes our knowledge about the locations of the two mosquito vectors that transmit Zika virus potentially incomplete. To effectively track the spread of the outbreak, it is critical that states and territories receive specimens and test for Zika virus to diagnose and report travel-related and locally acquired cases of Zika. Under the emergency request CDC will expand its efforts to assist public-health labs nationwide to test for Zika and to provide the guidance on how to interpret test results. In addition, CDC is available to provide testing of any Zika samples upon request. We are working to expand the number of health departments that have the ability to perform testing, but will need to increase the existing capacity to meet the projected demand for Zika testing. Given that, last year, it is estimated that approximately 500,000 travelers to areas of current Zika transmission were pregnant women and 36,000 pregnant women are currently living in the Commonwealth of Puerto Rico, the expansion of testing capacity in public health labs nationwide, included in the request, is urgently needed in order to ensure that every pregnant woman needing testing for Zika virus has access.

Recognizing the potential for Zika virus transmission through blood transfusions, CDC is collaborating with FDA to ensure the safety of the blood supply from Zika virus, particularly in regions experiencing local outbreaks. CDC has sent experts to the Commonwealth of Puerto Rico to assess the steps needed to assure both that Puerto Rico's blood supply needs are met and that transfusion-transmitted Zika is prevented.

CDC experts are working intensively to learn more about the outbreak and provide people with the information they need to protect themselves. We will continue to issue travel alerts for the affected areas as confirmation of the virus is reported, and we'll keep the American people informed as the situation changes. We recognize people are eager for information, and our website has exceeded half a million views in recent days.

CDC has also provided guidance for doctors and other clinicians on evaluation, treatment and follow-up care of pregnant women and infants with possible exposure to Zika virus, partnering with organizations from around the health care community to help distribute this information as widely as possible. Our guidance will continue to be updated as our knowledge increases. We have recently updated our guidance to provide recommendations for the

clinical care and management of pregnant women living in areas where Zika transmission is widespread, with special consideration to the ongoing risk of maternal Zika virus infection throughout pregnancy. These guidance documents were prepared in consultation with the American College of Obstetricians and Gynecologists, the Society for Maternal Fetal-Medicine, and the American Academy of Pediatrics.

CDC also wants to ensure that the general public knows what it can do to protect itself. Pregnant women should postpone travel to regions with ongoing Zika virus transmission. If they must travel, or if they live in affected areas, CDC recommends pregnant women talk to their doctors or other healthcare providers first and strictly follow steps to prevent mosquito bites. Reducing exposure to mosquitoes is important for anyone traveling to or residing in areas where the virus is circulating. Wearing long sleeves, long pants, using EPA-registered repellents such as DEET and permethrin-treated clothing (both of which are safe to use in pregnancy), and using other protections such as air-conditioning will reduce exposure to mosquito bites. Given the potential for Zika virus to be spread through sex, pregnant women and their male partners living in or who have been to Zika-affected areas should abstain from sex or use condoms for the duration of pregnancy. This is a rapidly changing situation and our understanding of the risks concerning Zika virus infection is incomplete and evolving. As we get new information, we will update our advice.

Global Activities

On February 1, the World Health Organization (WHO) declared the recent cluster of microcephaly cases and other neurological disorders (such as Guillain-Barré syndrome) and their possible association with Zika virus, a public health emergency of international concern, a reflection of the seriousness of this unfolding health threat. CDC is coordinating its response with the U.S. Agency for International Development, as well as the Pan American Health Organization (PAHO), the regional arm of the World Health Organization (WHO), and other parts of WHO, and is collaborating with many international partners to learn more about this outbreak. We are working with the Brazilian Ministry of Health on investigation and research partnerships. Specifically, one partnership involves studying the link between Zika virus infection and microcephaly, while another is examining the relationship between Zika virus and Guillain-Barré syndrome. Research teams from CDC are also in other countries, including Colombia, to explore collaborations that will shed light on the risk of microcephaly in relation to Zika virus infection during pregnancy.

In addition, CDC is offering support to all countries so that they can test samples from microcephaly cases for serologic evidence of Zika virus infection, and CDC is helping countries throughout the Americas establish in-country diagnostic capacity. To that end, we are currently, and in conjunction with PAHO, providing training to laboratorians in South and Central America on diagnostic tests, including two recent workshops in Brazil and Nicaragua.

CDC's Central American office has also facilitated the verification of Zika cases in several countries throughout Latin America, including Colombia, Venezuela, and Nicaragua. At the request of the Department of State's

Bureau of Medical Services, staff from CDC's Global Disease Detection Center in Guatemala has been involved in communication efforts to ensure that new information regarding Zika virus and its possible link to birth defects is communicated to U.S. Mission Health Unit staff throughout the Americas.

The Global Health Security Agenda, with critical support from Congress, is collaborating with countries around the world so that we can find, stop, and prevent health threats when and where they first emerge. Zika has been present in Africa for decades, and it's possible that it could become linked to microcephaly there as well. The sooner we detect a problem, wherever it occurs, the more rapidly we can respond to it and prevent it from spreading. It is in all of our best interests to work with others to improve public health capacity around the world.

Improving the tools and information for responding to Zika

We need a better understanding of the epidemiology of Zika and potential Zika-associated birth defects and other adverse health outcomes. We need better diagnostic methods that can quickly and clearly differentiate between similar viruses to detect evidence of past Zika infection. Testing for current Zika infection is only reliable in the first week of illness. A Reverse Transcription-Polymerase Chain Reaction (RT-PCR) test can provide a definitive diagnosis of Zika, but only if it is performed within about seven days of symptom onset. The tests we have available for Zika in persons who are no longer ill may have cross-reactivity with similar flaviviruses, particularly dengue, which can lead to false-positive or inconclusive results and confirmatory testing is required. Diagnosis is particularly challenging with Zika virus since most people will not experience symptoms. We also need to determine how long a man who has been infected with Zika may continue to be able to sexually transmit the virus to a partner, and we need better tools to screen the blood supply.

We also need to advance our ability to control the mosquito population. Existing methods for mosquito control all have shortcomings, especially in areas where the population of *Aedes* mosquitos is rampant. Furthermore, in some areas like the Commonwealth of Puerto Rico, mosquitos may have developed resistance to certain insecticides, which could reduce the range of substances that can be used to effectively decrease mosquito populations. We need to implement the best tools we have today, improve current vector control strategies, and identify better options. We also need better mosquito surveillance to determine the location of mosquitos and areas with mosquito resistance to insecticides, which would inform the implementation of new mosquito control techniques.

Finally, a vaccine is needed to protect people at risk of Zika virus infections, particularly preventing infection among women of childbearing age. At CDC, our scientists developed both a West Nile virus vaccine, which is currently in use for animal protection in the United States, and a dengue vaccine, which is currently in clinical trials. The President's request will increase Zika research, improve diagnostics and support advancements in vector control methods. Although availability of a licensed Zika vaccine is several years away, we do not know how long Zika will be a problem in the Americas nor whether the mosquito control efforts that must be implemented will yield durable results.

Conclusion

Microbes continue to be formidable adversaries. To protect Americans, the Zika emergency request invests in the laboratories, disease detectives, disease tracking systems, mosquito control, and investigations needed to continue to improve these essential tools.

The emergence and reemergence of health threats, including those spread by mosquitos and other vectors is not a unique event but something we expect to continue to see in the future. These outbreaks cannot be expected to occur in isolation of one another. The Commonwealth of Puerto Rico and Hawaii were already responding to outbreaks of dengue when Zika virus arose as an urgent health threat. We need to address the threat of mosquito-borne diseases systematically, rather than episodically. Thank you again for the opportunity to appear before you today. I appreciate your attention to this concerning outbreak and I look forward to answering your questions.

Mr. MICA. Thank you for your testimony.
We'll now turn to Dr. Fauci, representing NIH.
Welcome, sir, and you're recognized.

STATEMENT OF ANTHONY FAUCI, M.D.

Dr. FAUCI. Thank you very much, Chairman Mica, Ranking Member Duckworth, members of the committee. First, I want to thank you for the opportunity to discuss with you and the committee this morning the role of the National Institute of Allergy and Infectious Diseases in the research component of the broader approach toward addressing the Zika virus threat.

The NIAID, the institute that I direct, has a dual mandate among NIH institutes. First, we maintain and grow a robust basic and research portfolio in the disciplines of microbiology, infectious diseases, and immune-mediated diseases. However, despite that long-term commitment, we are also prepared and are part of our mandate to rapidly respond to new and emerging disease threats. And this has been something that we have been doing essentially from the beginning.

In fact, if one takes a look at this slide, it is the title of a perspective that I wrote last month for the *New England Journal Medicine*, and you will see from the title, it says, "Zika Virus in the Americas—Yet Another Arbovirus Threat." And what I was referring to is that, over the past couple of decades, we've see new diseases of the arbovirus type in the Western Hemisphere that we have not seen before: West Nile; dengue, from decades ago; chikungunya in 2013; and most recently, in 2015, Zika. When one looks at the role of what we do—if we can go back one—the role of what we do, the NIH's mandate is to do basic and clinical research to provide the research resources for industry and academia with the ultimate mandate to develop vaccines, therapeutics, and diagnostics. So let me take a couple of minutes to just describe some of these. When you look at things like the epidemiology and natural history, we are focusing on looking at symptomatic versus asymptomatic disease. What about the role of virus and how long it lasts in an individual following infection, a question extraordinarily important to pregnant women and women who want to become pregnant? What about cohort studies to actually nail down the causative relationship or not between infection and pregnancy and the development of congenital abnormalities, such as microcephaly, as well as understanding the pathogenesis of disease?

With regard to basic research, it is very similar to the basic research we've done with other viruses throughout the years, ranging from HIV 30-plus years ago to most recently with Ebola. And that is to look at viral structure, viral pathology, medical virology, the pathogenesis of disease, looking at the immune response, which gives us great insight into the development of vaccines.

In addition, as you know, the CDC takes the lead role as disease detectives in trying to determine the diagnosis of a disease, something they are doing right now. NIH grantees and contractors are also working on a more sensitive and specific antibody test to determine if, in fact, someone has been infected, because we know

now the current tests that are available have a degree of cross-reactivity.

One of the most important things we do is to develop vaccines, as we've done for so many other of these emerging threats. The candidates you see on the slide, the two marked with red, are the two that are most advanced and are essentially ready to go into early trials. We're partnering with our industrial colleagues, and right now, let me give you an example of why it's important to have done decades of research in other diseases that gives us a head start. Years ago, we developed a vaccine for West Nile virus. We went into phase 1. It was shown to be safe, and it was shown to induce an immune response that you would predict would be protective. We didn't have any industrial partners, so we never made it to the advanced development. But we used that platform to develop now a Zika vaccine that is essentially ready to go in the development of the early preclinical studies. And it really is a very interesting phenomenon. We took what's called a DNA piece of genes, and we stuck in it a West Nile gene to express a protein of West Nile. So all we did this time was take that same platform, take out the West Nile gene, and stick in the Zika gene. So, right now, we are making this vaccine, and we predict it will be ready to go into phase 1 trial by the summer of this year, and hopefully, by the end of 2016, we'll have enough information to decide if we can even go further to an advanced trial. And I will be happy to discuss that during the questioning period.

Finally, when one looks at therapy, we're doing screening of drugs of known activity against certain of these viruses, as well as new drugs that have potential activity. This is a very important issue, and we are now partnering with many of our industrial and biotech partners to do this.

Finally, on this last slide, I just want to recapitulate what I said from the very beginning. Emerging infections have been with us all along. They are with us now, and they will always be with us. I call it the perpetual challenge, as I did in this review from a few years ago. And I would like to thank this committee and other committees for the extraordinary support that you have given us over the years to allow us to fulfill this mandate. Thank you.

[Prepared statement of Dr. Fauci follows:]

DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH

Research Conducted and Supported by the National Institutes of Health (NIH) in
Addressing Zika Virus Disease

Testimony before the
House Committee on Oversight and Government Reform
Subcommittee on Transportation and Public Assets

Anthony S. Fauci, M.D.

Director

National Institute of Allergy and Infectious Diseases
National Institutes of Health

February 24, 2016

Mr. Chairman, Ranking Member Duckworth, and Members of the Committee:

Thank you for the opportunity to discuss the National Institutes of Health (NIH) research response to Zika virus, an emerging public health threat of international concern. I direct the National Institute of Allergy and Infectious Diseases (NIAID), the lead NIH institute for conducting and supporting research on emerging and re-emerging infectious diseases, including those caused by flaviviruses such as Zika virus.

The Administration is taking appropriate action to protect the American people and, as you know, has announced a request to Congress for approximately \$1.9 billion in emergency funding to enhance ongoing efforts to prepare for and respond to outbreaks of the Zika virus, both domestically and internationally. This includes funding for work on the development of vaccines and diagnostics and to improve scientific understanding of the disease.

The overarching mission of NIAID is to conduct and support research to better understand, treat, and prevent infectious and immunologic diseases. This is accomplished through a spectrum of research, from basic studies of the mechanisms of disease to applied research focused on developing interventions such as diagnostics, therapeutics, and vaccines. As part of this mission, NIAID has a dual mandate encompassing both research on ongoing public health issues and the capability to respond rapidly to newly emerging and re-emerging infections such as Zika virus.

These emerging and re-emerging disease threats, whether man-made or naturally occurring, are perpetual challenges, in part due to the capacity of microbial pathogens to evolve rapidly and adapt to new ecological niches. To address the challenges posed by emerging infectious diseases, NIAID employs both targeted, disease-specific research as well as broad-spectrum approaches. NIAID maximizes its efforts by prioritizing the development of drugs

effective against multiple bacteria or viruses, and “platform” technologies to facilitate rapid development of vaccines and diagnostics applicable to multiple infections.

NIAID is well-positioned to rapidly respond to infectious disease threats as they emerge by leveraging fundamental, basic research efforts; domestic and international research infrastructure that can be quickly mobilized; and productive partnerships with industry. NIAID provides preclinical research resources to scientists in academia and private industry worldwide to advance translational research against emerging and re-emerging infectious diseases. These resources are designed to bridge gaps in the product development pipeline and lower the scientific, technical, and financial risks incurred by industry in order to incentivize them to partner with us in the advanced development of effective countermeasures. NIAID also supports our Vaccine and Treatment Evaluation Units (VTEUs), a research network that conducts clinical trials to quickly investigate promising therapeutic and vaccine candidates when public health needs arise. NIAID collaborations with other federal agencies, including those undertaken within the Department of Health and Human Services (HHS) Public Health Emergency Medical Countermeasures Enterprise (PHEMCE), help advance progress against newly emerging public health threats. In addition, partnerships with academia, the biotechnology and pharmaceutical industries, and international researchers and organizations such as the World Health Organization (WHO) and WHO’s regional office, the Pan American Health Organization (PAHO), are integral to these efforts.

OVERVIEW OF ZIKA VIRUS

Zika virus is a flavivirus. These viruses typically are transmitted by mosquitoes and often have the ability to spread quickly to new geographic locations because of the widespread

prevalence of these vectors. Other well-known flaviviruses include dengue virus and yellow fever virus; like Zika virus they are transmitted by *Aedes* mosquitoes. Zika virus was discovered in monkeys in Uganda in 1947 and is now endemic to Africa and Southeast Asia. During the past decade it has emerged in other areas of the world, including Oceania, the Caribbean, and Central and South America, where countries, notably Brazil, are currently experiencing unprecedented Zika transmission.

Infections caused by Zika virus are usually asymptomatic. About 20 percent of infected individuals experience clinical symptoms such as fever, rash, joint pain, and conjunctivitis (red eyes). Symptoms of Zika virus infection in humans are typically mild and brief, with very low hospitalization and fatality rates. The recent outbreak of Zika virus disease in Brazil has coincided with a reported increase in the number of infants born with microcephaly, a birth defect characterized by an abnormally small head resulting from an underdeveloped and/or damaged brain. In addition, increases in suspected cases of Guillain-Barré syndrome (GBS), a rare, acute, immune-mediated peripheral nerve disease that leads to weakness, sometimes paralysis, and infrequently, respiratory failure and death, have been noted in Brazil and other countries in the Americas.

Further research is needed to better understand the effect of Zika virus infection on the body, particularly during pregnancy; to investigate the potential relationship between Zika infection and congenital abnormalities including microcephaly, as well as to explore the potential relationship between Zika infection and GBS; and to develop better diagnostics, vaccines and treatments, and new methods of vector control. Currently, no vaccines or specific therapeutics are available to prevent or treat Zika virus disease. Improved diagnostic tests also are needed because Zika virus infection causes non-specific symptoms or no symptoms at all and can be

difficult to distinguish by antibody screening tests from other mosquito-borne infections such as dengue, malaria, and chikungunya. Moreover, current antibody screening tests can be falsely positive or inconclusive if the individual was previously infected with related viruses such as dengue, which is prevalent in South America and the Caribbean. Therefore, a positive result with the antibody screening test requires an additional test to confirm the diagnosis.

NIH RESEARCH ON ZIKA VIRUS

NIAID has a longstanding commitment to flavivirus research, including extensive efforts to combat diseases such as dengue, West Nile virus, and yellow fever. This research has informed our understanding of the viral genetics, vector biology, and pathogenesis of flaviviruses and provides a strong foundation for our efforts to learn more about Zika virus. NIAID has responded to the newly emerging Zika virus disease outbreak by expanding our portfolio of basic research on Zika virus and other flaviviruses. NIAID also is accelerating efforts to develop improved diagnostics and candidate therapies for Zika virus as well as prioritizing the development of Zika virus vaccines. In addition, screening tests and pathogen reduction technologies are critically important to assure safety of the U.S. blood supply.

The emergency funding for NIH would support development of vaccines to prevent Zika virus infection, from the discovery phase through preclinical and eventually clinical testing. In addition, the funds would support basic research to understand the natural history, viral biology and pathogenesis, including potential links to microcephaly; establishment of animal models to test candidate countermeasures; development of rapid, sensitive, and specific diagnostic tests; and discovery and preclinical development of new therapeutics to treat disease caused by Zika virus. This research is necessary to better understand this emerging infection and uncover the best ways to diagnose, treat, and prevent Zika virus disease.

In January 2016, NIAID issued a notice to researchers highlighting NIH's interest in supporting research and product development to combat Zika virus. Areas of high priority include basic research to understand viral replication, pathogenesis, and transmission, as well as the biology of the mosquito vectors; potential interactions with co-infections such as dengue and yellow fever viruses; animal models of Zika virus infection; and novel vector control methods. In addition, NIH is soliciting Zika virus research to develop sensitive, specific, and rapid clinical diagnostic tests; drugs against Zika virus as well as broad spectrum therapeutics against multiple flaviviruses; and effective vaccines and vaccination strategies.

NIAID also is partnering with other NIH institutes, the *Eunice Kennedy Shriver* National Institute of Child Health and Human Development (NICHD), the National Institute of Neurological Disorders and Stroke (NINDS), and the National Institute of Dental and Craniofacial Research, to accelerate Zika virus research as it relates to the mother-infant pair. The Institutes issued a notice that indicates NIH's interest in supporting research to understand transmission, optimal screening and management in pregnancy, and the mechanisms by which Zika virus affects the developing nervous system, including potential links to microcephaly and other congenital abnormalities.

DEVELOPING TOOLS TO COMBAT ZIKA VIRUS

In response to public health concerns about Zika virus, NIAID has accelerated ongoing flavivirus research efforts to speed the development of tools that could help control current and future outbreaks of Zika virus.

Vector Control

For many years, NIAID has supported extensive research to understand the biology of mosquitoes to help develop tools to limit the spread of deadly mosquito-borne diseases such as dengue and malaria. This research aids in vector control strategies to reduce mosquito bites or limit mosquito populations. In the Americas, Zika virus is transmitted primarily by *Aedes aegypti* mosquitoes, and vector control or other methods to prevent exposure to these mosquitoes are currently the only ways to prevent Zika infection. NIAID plans to support vector competence studies to test various mosquito species for their ability to carry and transmit Zika virus and for insecticide resistance. Understanding the specific mosquito species involved in Zika outbreaks and which insecticides may be effective against them will aid current vector control efforts and may inform novel mosquito control strategies in the future.

Diagnostics

Accurate diagnostic tests for Zika virus infection are needed to distinguish it from other flavivirus infections and to identify women who have been infected with Zika virus during pregnancy and may be at risk for developing fetal complications. Blood, organ, and tissue donor screening tests are also needed to assure the safety of transfusion and transplantation in areas of active mosquito-borne virus transmission. Currently, Zika virus itself can often be detected during the acute phase of infection and up to seven days after the onset of symptoms using diagnostic tests for viral RNA (RT-PCR test). While prior infection can be detected by testing for the presence of antibodies against Zika virus, assays for Zika antibodies may also detect or cross-react with antibodies against other flaviviruses, particularly dengue virus. For this reason, a positive antibody test does not definitively confirm prior Zika virus infection in the setting of possible co-infection or prior infection with dengue and other related viruses, and separate

confirmatory testing is required. This is a particular concern in South America where there is a high level of exposure to other flaviviruses, particularly dengue virus.

To facilitate the development of improved Zika virus diagnostic tests, NIAID grantees are working to generate antibodies that can distinguish between Zika virus and dengue virus. They also are working to identify biosignatures unique to Zika infection that could form the basis of additional rapid, specific, and sensitive diagnostic tests. In addition, NIAID is pursuing the development of a mouse model of Zika virus infection that could be used to test new diagnostic and therapeutic tools.

Vaccines

A safe and effective Zika vaccine would be a very valuable tool to help stop the spread of infection and prevent future outbreaks. NIAID is investigating multiple Zika virus vaccine candidates, including vaccines based on technologies that have shown promise in targeting other flaviviruses. The NIAID Vaccine Research Center (VRC) is pursuing a DNA-based vaccine for Zika virus that is similar to a West Nile virus vaccine previously developed by NIAID. The West Nile vaccine candidate was shown in Phase 1 testing to be safe and generated a strong immune response in humans, offering a model for Zika vaccine development. NIAID scientists also are designing a live, attenuated vaccine, using an approach similar to that used for making a vaccine against the closely related dengue virus. The dengue vaccine candidate showed an excellent safety profile and generated strong immune responses in early-phase clinical trials. In January, a large Phase 3 trial assessing the dengue vaccine candidate was launched in Brazil in collaboration with the Butantan Institute. In addition, NIAID grantees are in the early stages of developing a Zika virus vaccine based on a recombinant vesicular stomatitis virus – the same

animal virus used successfully to create an investigational Ebola vaccine. Plans are underway to evaluate this potential vaccine construct in tissue culture and animal models.

While these approaches are promising, it is important to realize that the development of investigational vaccines and the clinical testing to establish whether they are safe and effective takes time. Although a safe and effective, fully licensed Zika vaccine will likely not be available for a few years, we plan to begin early-stage clinical testing of one or more NIAID-supported vaccine candidates in 2016.

Therapeutics

NIAID has an active program to screen for antiviral drugs active against viruses in the flavivirus family, including dengue, West Nile, yellow fever, and Japanese encephalitis viruses, as well as the closely related hepatitis C virus. NIAID has enhanced these efforts with the recent development of an assay to test compounds for antiviral activity against Zika virus. NIAID will make this test available to the research community and will soon test 10 antiviral compounds with activity against other flaviviruses to determine if they are effective against Zika virus. Promising drug candidates identified by the assay could be further tested in a small animal model of Zika virus infection developed with NIAID support. The ultimate goal of NIAID-supported flavivirus therapeutic research is to develop a broad-spectrum antiviral drug that could be used against a variety of flaviviruses, including Zika.

Emergency Request for Vaccine Research and Diagnostic Development and Procurement

As I noted in the introduction to my testimony, the Administration has announced an emergency-funding request of approximately \$1.9 billion to combat the Zika virus both domestically and internationally. Included in the request are resources for Zika-related vaccine research, rapid advanced development, and commercialization of new vaccines and diagnostic

tests for Zika virus. The funding will allow NIH to build upon existing resources and work to develop a vaccine for Zika virus and the chikungunya virus, which is spread by the same type of mosquito. Funding will accelerate this work and improve scientific understanding of the disease to inform the development of additional tools to combat it. The request also includes resources for FDA to support Zika virus medical product development, including the next-generation diagnostic devices. We look forward to working with the Congress to implement this request.

COLLABORATIONS

Investigation of emerging and re-emerging infectious diseases requires expertise from a variety of fields. In the case of Zika virus, studies of virology, immunology, natural history, neurology, and neonatology will be required to fully understand the pathogenesis of this infection. As mentioned previously, NIAID is partnering with other NIH institutes including NICHD and NINDS to better understand the potential association between Zika virus infection and neonatal defects, particularly microcephaly.

NIAID also is employing partnerships with research institutions in South America to advance research on Zika virus infection; additional collaborations with academic, industry, and government partners are under active exploration. NIAID held a joint meeting in December 2015 with Brazilian research institute Fiocruz in which Zika was a key area of concentration. In addition, NIAID is collaborating with other HHS agencies in responding to the Zika epidemic. For example, NIAID, CDC, BARDA, ASPR, and FDA are jointly convening a Zika virus workshop on March 28-29, 2016, where the latest information on Zika virus will be discussed by experts from Federal Agencies, academia, and pharmaceutical and biotechnology

companies. Topics to be addressed at the workshop include virology, epidemiology, possible links to microcephaly, and efforts to develop diagnostics, therapeutics, and vaccines.

CONCLUSION

NIH is committed to continued collaboration with HHS agencies and other partners across the U.S. government in advancing research to address Zika virus infection, and we look forward to working with the Congress to implement the President's emergency funding request. As part of its mission to respond rapidly to emerging and re-emerging infectious diseases throughout the world, NIAID is expanding our efforts to elucidate the biology of Zika virus and employ this knowledge to develop needed tools to diagnose, treat, and prevent disease caused by this virus. In particular, NIAID will pursue the development of safe, effective vaccines to prevent disease caused by Zika and chikungunya viruses.

Mr. MICA. Thank you, Dr. Fauci.
 Now we'll recognize our Florida surgeon general, Dr. Armstrong.
 Welcome, and you are recognized, sir.

STATEMENT OF JOHN ARMSTRONG, M.D.

Dr. ARMSTRONG. Thank you, Chair Mica, Ranking Member Duckworth, and members of the subcommittee. I'm glad for the opportunity to be here with you this afternoon.

Florida has a long tradition of combating and eradicating mosquito-borne diseases. In fact, the Florida Department of Health was created out of an epidemic of yellow fever in 1889. Our mosquito-borne outbreaks in modern times have been local and of short duration. Consistently, the approach has been threefold: first, mosquito control; next, public information; and, third, health professional education. And we have seen success with containment of West Nile virus, dengue, and chikungunya. This afternoon, I'll provide an update on the status of Zika virus in Florida, and an overview of how Florida has successfully applied CDC guidelines to protect our residents and visitors.

To date, we have had no transmission of the Zika virus in the State of Florida. Through healthcare professional readiness, our department has reported 29 travel-related Zika cases to the CDC, most recently from Seminole County. A travel-related case is defined as a disease that was contracted outside of the State prior to arrival.

None of our confirmed cases of active Zika virus involve pregnant women. We have, however, identified three pregnant women who traveled to countries affected by Zika and who likely had Zika virus in those countries and who have returned without any symptoms. They have evidence of remote infection with Zika, and we are applying CDC guidelines to ensure that these women receive care through their health professionals consistent with those guidelines.

We've had 29 cases in 11 Florida counties, and we currently have the laboratory capacity to conduct over 4,800 viral tests for active Zika and over 1,200 antibody tests to detect past Zika infection. We've been conducting approximately 300 tests for Zika a week and reporting positive results to our partners and the public daily.

Recognizing the increase of travel-related cases of Zika in Florida, on February 1, Governor Rick Scott requested a briefing with the CDC on the Zika virus, and on that call, we confirmed that the Aedes mosquito, the carrier of Zika, is common in Florida and that there are potential links between Zika and newborn microcephaly as well as adult neurologic disorders, including Guillain-Barre syndrome. What was most clear from that briefing is that there is scientific uncertainty about Zika transmission beyond the mosquito bite and about the impacts of Zika after an individual becomes infected.

Guidance from the CDC should account for this uncertainty while providing actionable recommendations with what is known. Based on the information from that meeting and the tripling of travel-related cases in the following week from three to nine, on February 3, Governor Rick Scott issued an executive order directing me to declare public health emergencies in the counties with diagnosed travel-related cases, and on that same day, I declared

public health emergencies in the four impacted counties at that time and have since added counties to the declaration, as I've shared.

The public health emergency included three key directives: one, notification of Florida's commissioner of agriculture, who oversees the Office of Mosquito Control, which connects with Florida's local mosquito control boards; next, mobilization of local leaders to coordinate mosquito-control efforts and public outreach to vulnerable populations with meeting summaries and action plans reported back to the Department of Health; and, finally, outreach to medical professionals with up-to-date CDC guidance to increase awareness and access to diagnostic tools. At the department, we established an incident command team to address comprehensive readiness activities.

Florida has one of the premiere State lab systems in the country with a central laboratory in Jacksonville and branch laboratories in Miami and Tampa. When the public health emergency was issued, Governor Scott recognized that with over 20 million residents and over 100 million tourists annually, Florida must stay ahead of the possible spread of the Zika virus and that our lab capacity plays an essential role in that effort. He called on the Florida Department of Health to have on hand at least 4,000 viral tests, which are commercially available and were ordered the next day. Governor Scott called on the CDC to provide at least 1,000 Zika antibody tests so that we could test individuals, especially pregnant women and new mothers, who have traveled to affected areas and had symptoms of Zika. The antibody test allows the State to see if individuals ever had the Zika virus. At that time, we had a capacity for only 475 tests. On February 9, the CDC provided Florida with 950 additional antibody tests, bringing our total to 1,425.

So, with our existing lab infrastructure and the needed testing resources we are now equipped to work with medical professionals to test patients with symptoms of the Zika virus and associated travel history to an impacted country based on CDC guidance. The Florida Department of Health licenses all Florida medical professionals and has existing communication channels with our licensees, and we have used these channels to share CDC guidance on the disease, treatment and testing protocols, as well as recent FDA recommendations regarding blood donation from individuals who have been to areas with active Zika virus transmission. Healthcare professional safety has always been of paramount importance, and we have emphasized CDC guidance that universal precautions provide the appropriate level of protection.

On February 12, at the request of Governor Scott, the CDC hosted a conference call for Florida medical professionals to provide information on the symptoms, treatments, and proper precautions for Zika. Nearly 600 medical professionals and healthcare facilities dialed into the call to hear directly from the CDC on the measures they need to take to help patients. Strengthening the connection between healthcare professionals and the public health system is essential for tracking and containing disease, and we remain in frequent contact with the CDC and FDA for the latest guidelines on how best to prepare communities in Florida.

Finally, public outreach. We work to keep the public informed as one of the best ways to calm fears and educate for action. At the direction of Governor Scott, we've established a Zika virus information hotline for Florida residents and visitors as well as anyone planning on traveling to Florida in the near future. We want Florida residents and visitors to have access to an open line of communication to receive the latest updates, have their questions answered, and get advice on what steps they can take to protect their homes and families. We issue a daily press release with up-to-date diagnosis counts and tips for Floridians on how to protect themselves. We've established a Web page with links to CDC guidance and public information on community meetings. We've developed infographics to explain clearly what the virus is and the best practices for mosquito protection. And these materials have been requested for rebranding by other States. And we've made materials and presentations available to our 67 county health officers as an integrated Department of Health to inform community stakeholders and partners.

We are sharing three key messages about Zika virus: One, anyone who is pregnant, intends to become pregnant, or might become pregnant should not travel to a country with active Zika virus transmission as determined by the CDC. Two, travelers from Zika infected countries should have protected sex for at least a month upon returning to the United States due to the lingering presence of the virus and various bodily fluids. And, three, the best way to prevent Zika and other mosquito-borne viruses is through mosquito control, which includes individual responsibility to eliminate any sources of standing water where the mosquito can breed, to use mosquito repellant and cover with proper clothing, and to ensure that window and door screens are in place and intact.

Our residents play an important role in helping prevent the spread of mosquito-borne viruses, and we want them to have all the information they need to join the effort.

In Florida, we have developed a proven seamless model to take CDC guidance from the Federal Government and get it to our residents, our visitors, our health professionals, and partner organizations to protect them from emerging mosquito-borne diseases. I'm confident that our history as a department has prepared us to address this issue. In the past, we've had success in containing other mosquito-borne viruses, such as chikungunya and dengue, with systems of readiness that mirror the level of preparedness that we currently maintain. We have made it a priority to stay ahead of the possible spread of the virus in Florida, and we will continue to do all we can to keep Floridians safe.

Thank you.

[Prepared statement of Dr. Armstrong follows:]

Written Testimony for:
John H. Armstrong, MD, FACS
Florida's State Surgeon General &
Secretary of Health

**Testimony to Committee on Oversight & Government Reform
February 24, 2016, 2 p.m.
Rayburn Building 2154**

Opening

- Florida has a long tradition of combatting and eradicating mosquito-borne diseases. In fact, the Department of Health's predecessor the State Board of Health was created in 1889 as a result of a yellow fever epidemic.
- Human mosquito-borne disease outbreaks in Florida in modern time have been local and of short duration. Approach has consistently been three-fold:
 - Mosquito control (larvicides and pesticides)
 - Public information campaign (drain standing water and cover up)
 - Health professional education (early recognition of mosquito-borne diseases)

Examples:

- West Nile, 2003 (Most active year in the U.S):
 - 94 confirmed cases in Florida compared to 9,862 nationally
- Containing the Dengue cases Key West in 2009 with door-to-door inspections with remediation and a public information campaign.
 - 27 cases statewide in 2009
- Chikungunya 2014: 11 locally transmitted cases; 2015: 0 locally transmitted cases.
- First, I would like to provide an update on the status of the Zika virus in Florida followed by an overview on how Florida successfully operationalized CDC guidance to protect our residents and the visitors to our state.

Zika Virus Status

- To date, we have had no transmission of the Zika virus in the state of Florida.
- Through education with our health care professionals our department has reported several travel-related Zika cases to the CDC. Travel-related cases are defined as a disease believed to be contracted outside of the state prior to arrival. In total, Florida has reported 28 travel-related cases to the federal government; none of the confirmed cases in Florida involve pregnant women.
- The 28 cases are in 10 Florida counties (Alachua, Broward, Hillsborough, Lee, Miami-Dade, Osceola, Santa Rosa, Brevard, Orange and St. Johns).
- We currently have the laboratory capacity to conduct 4,859 viral tests (active zika) and 1,268 antibody tests (presence of Zika in the past) in two of our FL DOH labs in Jacksonville and Tampa.

- We have been conducting approximately 300 tests a week and reporting positive results to our partners and the public daily.
 - 160 PCR specimens weekly
 - 128 enzyme-linked immunosorbent assay (EIA) specimens

Florida Response

- Recognizing the increase of travel-related cases of Zika in Florida, on February 1 Governor Rick Scott requested a briefing with the CDC on the Zika virus.
- On that call we confirmed that Aedes mosquitos, the carriers of Zika, are common in Florida and there are potential links with the virus and microcephaly as well as neurological disorders including Guillain-Barre Syndrome.
- What was most clear from that briefing is that there is a need for more concrete and scientifically sound information from the CDC about this disease. The fact remains very little information about the different ways this disease is transmitted and the impacts it has after an individual becomes infected.
- Based on the information from that meeting and the tripling of travel-related cases in a week (3 to 9), on February 3 Governor Scott issued an Executive Order directing me to declare of public health emergency in the counties with diagnosed travel-related cases.
- On the same day, I declared a public health emergency in the impacted counties at that time and have since added counties to the declaration as new travel-related cases are identified.
- The public health emergency included three key directives.
 - Notification of Florida's Commissioner of Agriculture who has the authority to enact a threat to animal health and oversees the Office of Mosquito Control which is connected with Florida's local mosquito control boards.
 - Mobilization of local leaders to coordinate mosquito control efforts and public outreach to vulnerable populations and report back to the Department of Health with meeting summary and action plans.
 - Activates local outreach to medical professionals with up-to-date CDC guidance to increase awareness and access to diagnostic tools.

- As a department, we established an incident command team to comprehensively address readiness activities.

Lab Capacity

- Florida has one of the premier state lab systems in the country with the central laboratory in Jacksonville and branch laboratories in Miami and Tampa.
- When the public health emergency was issued, Governor Scott recognized that with over 20 million residents and over 100 million tourists, Florida must stay ahead of the possible spread of the Zika virus and our lab capacity plays essential in role in that effort.
- Governor Scott called on the CDC to provide at least 1,000 Zika antibody tests so the state can test individuals, especially pregnant women and new mothers, who have traveled to affected areas and had symptoms of Zika. The antibody test allows the state to see if individuals ever had the Zika virus. At that time, Florida had the capacity to test only 475 people.
- He called on FL DOH to have at least 4,000 viral tests which are commercially available and were ordered the next day.
- On February 9, the CDC provided Florida with 950 antibody tests, bringing the state's total to 1,425.
- With our existing lab infrastructure and the needed testing resources we are now equipped to work with medical professionals to test patients with symptoms of the Zika virus and associated travel history to an impacted country, as CDC guidance indicates.

Medical Professional Outreach

- The FL DOH licenses all Florida medical professionals as such has existing communications channels with our licensees.
- We have used these channels to share CDC guidance on the disease, treatment and testing protocols, as well as recent FDA recommendations for blood donation as they pertain to individuals who have been to areas with active Zika virus transmission.
- We have also emphasized universal standards of care as an added precaution and general best practice.
- On February 12, at the request of Governor Scott, the CDC hosted a conference call for Florida medical professionals to provide information on the symptoms, treatments and proper precautions for Zika. Nearly 600 medical professionals dialed in to the call to hear directly from the CDC on the measures they need to take to protect their patients.

- Strengthening the connection between practitioners and the public health system is key when tracking and suppressing the spread of disease.
- We remain in frequent contact with the CDC and the FDA for the latest guidelines on how best prepare communities in Florida.

Public Outreach

- We feel that keeping the public informed is one of the best ways to educate and calm fears.
- At the direction of Governor Scott, we established a Zika Virus Information Hotline for Florida residents and visitors, as well as anyone planning on traveling to Florida in the near future. We want Florida residents and visitors have access to an open line of communication to receive the latest updates, get answers to questions and advice on what steps they can take to protect their homes and families.
- DOH issues a daily press release with up-to-date diagnoses counts and tips for Floridians on how to protect themselves and their families.
- We established a web page with links to CDC guidance and information for the public on community meetings.
- Developed infographics to plainly explain the virus and mosquito protection best practices, which have been requested for rebranding by other states.
- We've made materials and presentations available to our 67 county health officers to provide to community stakeholders and partners.
- These are the key messages we are sharing about the Zika Virus:
 - Travelers from Zika-infected countries should have protected sex for at least a month upon returning to the United States, due to the lingering presence of the virus in various bodily fluids.
 - Anyone who is pregnant or intends to become pregnant should not travel to a country with active Zika virus transmission.
 - The best way we can prevent arboviruses is through mosquito control: eliminate any sources of standing water where the mosquito can breed, use mosquito repellent, use screens to cover windows and doors and cover up with proper clothing.

- Our residents will play an important role in helping prevent the spread of the Zika virus and we want them to have all the information they need to join in the effort.

Conclusion:

- In Florida, we have developed a proven, seamless model to take CDC guidance from the federal government and get it to our health practitioners, partners and citizens to protect our residents and visitors from emerging mosquito-borne diseases.
- Although it seems unprecedented in nature, I'm confident that our history as a department has prepared us to address this issue. In the past, we have had success in containing other mosquito-borne illnesses such as chikungunya virus and dengue virus, with systems of readiness that mirrors the level of preparedness we currently maintain.
- We have made it a priority to stay ahead of the possible spread of this virus in Florida, and we will continue to do all we can to keep Floridians safe.

Mr. MICA. Thank you, Dr. Armstrong.

And we will now hear from the representative from the U.S. Olympic Committee, Dr. Moreau.

Welcome, and you are recognized.

STATEMENT OF BILL MOREAU, D.C.

Dr. MOREAU. Thank you, Chairman Mica, Ranking Member Duckworth, and the other members of the subcommittee for holding this hearing on Zika and U.S. governmental preparedness.

The USOC recognizes that Zika is a serious global health concern and an issue that we are proactively addressing with Team USA.

The U.S. Olympic Committee is a sports organization. Our mission is to support U.S. Olympic and Paralympic athletes in achieving sustained competitive excellence while demonstrating the values of the Olympic movement, thereby inspiring Americans. Every 2 years, we bring Team USA to the Olympic and Paralympic Games. In the between games, we work very closely with 47 national governing bodies of sport to build Team USA.

The safety of our athletes and staff is our number one priority. As the managing director of sports medicine for the U.S. Olympic Committee, my mission is to build and coordinate a complex network of medical doctors, healthcare services, and academic experts across numerous medical fields.

The U.S. Olympic Committee is not an organization with a focus on the specialty of infectious disease. We rely on the tremendous expertise of the Centers for Disease Control and Prevention and other public and private infectious disease experts to address and help us to understand the threats that viruses, such as Zika, pose for our athletes. We have been in regular contact with the CDC and other experts for months. They continue to provide us sound recommendations based on the information available to date. We have supported these recommendations, developed a protocol to mitigate risks, and provided this information to all potential Team USA athletes and support staff likely to travel to Rio before and during the Summer Olympic and Paralympic Games.

I have submitted the most recent USOC communications to the athletes with this testimony. Working with the CDC and other experts, the USOC has developed a protocol to mitigate the risk posed by Zika. Let me walk you through that right now. We're continuously communicating the latest information to our athletes, staff, and other stakeholders. We are steadily communicating with partners, such as the International Olympic Committee, the World Health Organization, the CDC, Department of Defense, and infectious disease specialists. We are monitoring evidence-based sources for information regarding viral pathogens. We are following the mosquito bite precautions, as provided by the CDC. We are following insect repellent selection, as recommended by the DOD. We are maintaining awareness through our partners regarding new interventions as they are identified. We are training our medical team regarding the early recognition and interventions for viral infection such as Zika. We are stocking our formulary with the best supportive medical interventions. We are providing DEET-containing insect repellent for personnel, issued prior to departure with additional supplies on hand in Rio. We are considering

pretreatment with permethrin kits for all USOC personal clothing. We are also considering providing bed nets for all personnel, and we are identifying Brazilian locations for additional support regarding viral pathogens.

In conclusion, knowledge about Zika virus is growing on an almost daily basis. We are following all of the developments. We are incredibly pleased with the support and collaboration that we've received from the CDC, the DOD, and others and are, indeed, indebted to them for sharing this information so that we can provide the best, most accurate information to our athletes and staff who most directly serve and support our athletes. We will continue to work closely with the CDC, the DOD, and other infectious disease experts throughout the Rio games, and we will continue to follow the CDC recommendations.

Thank you, again, for the opportunity to address this important issue.

[Prepared statement of Dr. Moreau follows:]

HOUSE COMMITTEE ON OVERSIGHT AND GOVERNMENT REFORM, SUBCOMMITTEE ON
TRANSPORTATION AND PUBLIC ASSETS

“The Zika Virus: Coordination of a Multi-Agency Response”

2154 Rayburn House Office Building

February 24, 2016

Good Morning. My name is Dr. Bill Moreau. I am the Managing Director of Sports Medicine for the United States Olympic Committee.

I want to thank Chairman Mica, Ranking Member Duckworth and other members of the House Committee on Oversight and Government Reform, Subcommittee on Transportation and Public Assets for holding this hearing on Zika and US Government preparedness.

Background on the USOC - The United States Olympic Committee was founded in 1894 and is headquartered in Colorado Springs, Colorado. It serves as both the National Olympic Committee and National Paralympic Committee for the United States. As such, the USOC is responsible for the training, entering and funding of U.S. teams for the Olympic, Paralympic, Youth Olympic, Pan American and Parapan American Games, while serving as a steward of the Olympic Movement throughout the country.

In 1978, the passage of The Amateur Sports Act (now The Ted Stevens Olympic and Amateur Sports Act – revised in 1998) as federal law appointed the USOC as the coordinating body for all Olympic-related athletic activity in the United States. It specifically named the USOC coordinating body for athletic activity in the United States directly relating to international competition, including the sports on the programs of the Olympic, Paralympic, Pan American and Parapan American Games. The USOC was also tasked with promoting and supporting physical fitness and public participation in athletic activities by encouraging developmental programs in its member organizations.

The USOC has two primary responsibilities in its oversight of Olympic and Paralympic sport in the United States. The first is to generate resources in support of its mission, which is to help American athletes achieve sustained competitive excellence. The second is to ensure organizational resources are wisely and effectively used to that end.

In addition to its international Games responsibilities and its work to advance the Olympic Movement, the USOC aids America's Olympic and Paralympic athletes through the National Governing Bodies (NGBs), providing financial support and jointly working to develop customized, creative and impactful athlete-support and coaching education programs.

The USOC also supports U.S. Olympic and Paralympic athletes on and off the field of play through programming such as direct athlete funding, health insurance, tuition grants, media and marketing opportunities, career services and performance-based monetary rewards. In addition, the Olympic Training Center facilities provide athletes with performance services, including sports medicine; strength and conditioning; psychology, physiology and nutrition assistance; and performance technology.

Additionally, the USOC oversees the process by which U.S. cities bid to host the Olympic/Paralympic Games, the Youth Olympic Games or the Pan/Parapan American Games, while also playing a supporting

role in the bid processes for hosting a myriad of other international competitions. Further, the USOC approves the U.S. trials sites and procedures for the Olympic, Paralympic, Youth Olympic, Pan American and Parapan American Games team selections

Addressing the Zika Outbreak with the Support of the US Government – The US Olympic Committee is a sports organization. Our mission is to support US Olympic and Paralympic athletes in achieving sustained competitive excellence while demonstrating the values of the Olympic Movement, thereby inspiring all Americans. Every two years we bring Team USA to the Olympic and Paralympic Games. In between Games, we work very closely with 47 NGBs to build Team USA.

The safety of our athletes and staff is our number one priority. As the Managing Director of Sport Medicine for the US Olympic Committee, my mission is to build and coordinate a complex network of medical doctors, health care services, and academic experts across numerous medical fields. We have tremendous medical expertise supporting Team USA at our training centers and across the country. Together, we help elite athletes mitigate health risks they may encounter during the course of their training or competition. We also help them maximize their best physical performance by preventing injuries and illness, and supporting healing and recovery should they face a health related challenge.

The USOC sports medicine staff operates three clinics at the U.S. Olympic Training Centers in Chula Vista, Calif., Colorado Springs, Colo., and Lake Placid, N.Y. The staff takes multi-disciplinary approaches to prevention, evaluation, management, treatment, and rehabilitation of athlete injuries and illnesses to ensure Team USA athletes return to the playing field as soon as possible following an injury or illness.

Roughly 95 percent of the USOC athlete presentations are musculoskeletal in their origin. In addition to the sports medicine expertise we are able to provide directly to our athletes, we have also developed a robust relationship with several hospitals, hundreds of physicians and university based medical schools which are integrated into the medical services the USOC provides to Team USA. As it relates to the Zika outbreak specifically, we have strong networks with experts in infectious disease as you will hear in more detail through the course of my testimony.

The US Olympic Committee is not an organization with a focus or specialty in infectious disease. We rely on the tremendous expertise of the Center for Disease Control and Prevention (CDC) and other public and private infectious disease experts to understand and address the threats that viruses such as Zika pose for our athletes. We have been in regular contact with the CDC and other experts for months. They continue to provide us sound recommendations based on the information available to date. We have compiled these recommendations, developed a protocol to mitigate risks and provided this information to all potential Team USA athletes and support staff likely to travel to Rio before and during the Summer Olympic and Paralympic Games. I have submitted the most recent USOC communications to the athletes with this testimony.

Current USOC Protocol to Mitigate Zika and Other Viral Threats

Working with the CDC and other experts, the USOC has developed a protocol to mitigate the risks posed by Zika. Let me walk you through it now. We are:

- Continuously communicating the latest information to our athletes, staff and other stakeholders.

- Steadily communicating with partners such as the IOC, WHO, CDC, Department of Defense (DOD) and infectious disease specialists.
- Monitoring evidence-based sources of information regarding viral pathogens.
- Using mosquito bite precautions provided by the CDC.
- Using insect repellent as recommended by DOD.
- Staying aware of any treatments/antivirals/immunizations as they are developed. Currently there are none.
- Training our medical team on early recognition information about Zika.
- Stocking formulary with best supportive medicinal interventions.
- Providing adequate DEET containing insect repellent for personnel issued prior to departure with additional supplies on hand in Rio. Telling athletes to apply their sunscreen before the insect repellent.
- Considering pre-treatment with Permethrin kits for all USOC "personal" clothing.
- Considering providing bed nets for all personnel.
- Identifying Brazilian locations for rapid diagnostic tests for viral pathogens.

One point that is often lost in the discussion about Zika and the 2016 Summer Olympic and Paralympic Games is that it will be winter in Brazil in August. This is typically the driest time of the year in Brazil and a less active time for mosquitos. We hope this will be the case this year and that the risk of infection will be lower for our athletes and all fans. We will continue to update and implement our risk mitigation protocol in any event.

Knowledge about the Zika virus is growing on almost a daily basis. We are following all of the developments. We are incredibly pleased with the support and collaboration we have received from the CDC, the DOD and others, and are indeed, indebted to them for sharing this information so that we provide the very best, most accurate information to our athletes and those staff who most directly serve and support our athletes. We will continue to work closely with the CDC, the DOD and other infectious disease experts throughout the Rio Games and we will continue to follow the CDC recommendations.

Thank you again for the opportunity to address this important issue.

United States Olympic Committee
1 Olympic Plaza, Colorado Springs, CO 80909
719-632-5551

Mr. MICA. Thank you, each of our witnesses, for their testimony. And we'll turn to questions. And I'll begin. Dr. Schuchat, can the CDC confirm what I said earlier, that we have not had a case of Zika infection from a mosquito in the United States? Everything is coming in so far from another source. Is that correct?

Dr. SCHUCHAT. For the 50 States and the District of Columbia, that's right. We do have cases in Puerto Rico and the territories.

Mr. MICA. Okay. Okay. So Puerto Rico and the territories, Virgin Islands—

Dr. SCHUCHAT. The Virgin Islands and American Samoa, at this point, I believe they are—but continental U.S., 50 States, not yet, right.

Mr. MICA. Now, the next thing—and I just became more concerned as I heard Dr. Armstrong reveal the issue with pregnant women. And we think there's a link, pretty good link, to some birth defects. And this is a Transportation Oversight Subcommittee along with other things, but these people are coming in mostly from Latin and South America by air. Are there warnings now to people coming in? Is everyone getting a warning who comes in, particularly women? I'd be concerned. When I read all the testimony last night, it seems like the women are the most at risk. We don't know. But are they getting a warning?

Dr. SCHUCHAT. We have been working very closely with air travel industry and other travel partners, so there's signage and so forth.

Mr. MICA. Okay. I think that, again, it would be good to send out something that—and the airlines have cooperated. They always cooperate. We've had the bird flu; we've had—

Dr. SCHUCHAT. Absolutely.

Mr. MICA. —others, Ebola, others. But I think we need to get a warning. It's not that many coming in. We know where they are coming in from, but the infected areas, that there be some kind of warning to the passengers.

We do know that there's this—and I'm not technically qualified; I get the wrong terms, incubation or whatever you call it—the period, the period of vulnerability from 21 to 30 days; that's pretty much agreed on, Dr. Fauci, we think?

Dr. FAUCI. Yes.

Mr. MICA. You said stop having sex for 30 days or something along—

Dr. FAUCI. Yes. If you are infected, you will clear the virus within 7 days, usually, and, therefore, for the rest of the time, generally, except if you are a male, and it could be in the semen, which has been demonstrated in a number of individuals.

Mr. MICA. We don't know how long that's—

Dr. FAUCI. We don't know. It has been in some, unfortunately, as far out as 62 days.

Mr. MICA. As far as what?

Dr. FAUCI. One was 62 days, but that's maybe an outlier, but we don't know how long—

Mr. MICA. Well, again, I think the first thing is getting the warning out. These are people coming into the United States from infected areas. So that would be my concern, and we need to work with the aviation industry to get these warnings out there, particu-

larly among women, and then advise them of the risk that we know so far.

Okay. I have a release from the Governor's Office just a couple of minutes ago, 2:27, asking the Centers for Disease Control for another 250 kits to test for Zika virus. Are you able—now, they—you've already cooperated, and you guys have been there. Dr. Armstrong, the requests have gone in. Everything has been done in a timely fashion. Are we able to meet this request, and where are we in the stockpile of making certain we have the test kits?

Dr. SCHUCHAT. You know, we have been working around the clock to produce kits and to develop even better tests, and we—one of the reasons for the emergency request is the volume. We estimate about half a million pregnant women will be traveling back and forth to affected areas this year, 35,000 pregnant women in Puerto Rico alone. So keeping up with that volume for the State support is one of the reasons for the emergency request.

Mr. MICA. But do we have the test kits now or ordered? Is there—

Dr. SCHUCHAT. Well—

Mr. MICA. You just said there may be a big need. Our job is to stay ahead of the curve and your job. Do we have the test kits, like here's one small additional order, and can we meet the additional?

Dr. SCHUCHAT. Where we are right now is—

Mr. MICA. You have the orders in—

Dr. SCHUCHAT. We've produced about 30,000 and we'll have about 90,000 shortly. So we're working around the clock.

Mr. MICA. Okay.

Dr. SCHUCHAT. And we're working with private partners so that they can help us—

Mr. MICA. Okay. So we are alerting—we are going—if we haven't, we are going to alert people coming in. We are going to work with you on that. On the test kit, we want to make sure we have test kits available and the supply.

The thing that startled me was the blood supply, because this is in the blood. We should also have a warning about there ought to be 60, 90 days, a warning that people should not donate blood or identify that they've been to a country where they've been exposed when they are coming back.

Dr. SCHUCHAT. Yes. The FDA has—actually, voluntarily, the blood banks did that with a month—self-deferral within a month, and the FDA instituted it formally. There's also an effort now in Puerto Rico to import blood, because the virus—

Mr. MICA. In—

Dr. SCHUCHAT. —because they can't assure that local blood will be okay.

Mr. MICA. And is FDA giving proper warning?

Dr. SCHUCHAT. Absolutely.

Mr. MICA. God bless the people of Puerto Rico. They should have some transparency in the blood supply, truth—

Dr. SCHUCHAT. Right. And there's accelerated effort to develop screening tests so that blood can be assured to be safe in endemic locations.

Mr. MICA. Okay. Now, you guys have been great in identifying the course forward. I've got a couple of quick questions. The test-

ing—and you're trying to get more advanced tests. And a lot of that evolves around the President's request. It was a good request. I just read it. Where is my President's request here, guys? Here it is, from the White House to the Speaker and all the Members. And he asked for about \$1.8 billion. Now, coincidentally—and I didn't know this; I have a letter back from Mr. Rogers, the chairman of Appropriations—there's about \$1.8 billion available with leftover money from Ebola. Do you have the ability to move that money into where we need it?

Dr. SCHUCHAT. The——

Mr. MICA. I'll ask both of you, CDC, NIH.

Dr. SCHUCHAT. A couple of key points about Ebola. The outbreak is out of the headlines, but there is still substantial effort. Last month——

Mr. MICA. But you still have a balance of about 1.8 or 9 billion dollars?

Dr. SCHUCHAT. Not—the CDC does not have that large a balance for Ebola. Our Ebola resources are either committed or——

Mr. MICA. But the administration does have—again, from Mr. Rogers, the chairman of Appropriations, is saying that that's unexpended dollars. My whole question is: There's some money available. Do you have money to address this now?

Dr. SCHUCHAT. We——

Mr. MICA. Are you short?

Dr. SCHUCHAT. The resources for Ebola are committed. They are global health security resources, which are fully programmed.

Mr. MICA. Okay. Then do you have resources now. I mean, we do a lot of things around here by executive order. We shift money. I mean, in a nanosecond you can see the President or the administration shifting money to some cause.

Dr. SCHUCHAT. Right. The committee——

Mr. MICA. Do you have that ability to get the test kits, to get—and then I want to ask Dr. Fauci, because you've got a whole bunch of things in research. You're on—it was fantastic news to hear the summer trials; by the summer, you're moving ahead, and you showed us how you're doing that. But I want to know and assure these Members that you feel that you have the resources and support from the administration to move forward. Do you, Dr. Fauci?

Dr. FAUCI. Our proportion of the Ebola money, we have——

Mr. MICA. Well, you have Ebola, and you have other money.

Dr. FAUCI. Right, but I'll explain to you what we are doing. So our proportion of the Ebola money, we've essentially spent all of it except for maybe \$9 million. So we have obligated almost all of our Ebola——

Mr. MICA. Do you have other sources?

Dr. FAUCI. Our sources right now, without the supplement that's been asked for by the President, is moving money out of doing other things. So let me tell you what we have done. We have money that we have been investing in contractors and grantees who do Flavivirus research, both in the United States and Brazil. We have now directed them to switch over and add on nearly——

Mr. MICA. They are under contract to address that——

Dr. FAUCI. Right. Yeah. But they are going to have to not do other things in order to do that.

Mr. MICA. Okay. And do you have people under contract?

Dr. SCHUCHAT. We've—the global moneys have—commitments have been made to 17 high-risk countries in Africa where we—and Asia, where—which are very vulnerable for exactly what happened with Ebola.

Mr. MICA. But you're directing some of those funds now to Zika. And is that 17 countries you talk about—

Dr. SCHUCHAT. No. No. That's—those resources are for African countries. The—

Mr. MICA. But for what? Ebola? Or for other diseases? All of the above?

Dr. SCHUCHAT. To prevent, detect, and respond to threats, including—

Mr. MICA. So it could be Zika?

Dr. SCHUCHAT. In those countries, they are not having Zika. So, essentially—

Mr. MICA. Well, it is in different—

Dr. SCHUCHAT. Right, exactly. The geography of that global—

Mr. MICA. And do you intend to redirect some of that money now that we have this?

Dr. SCHUCHAT. We think that would be terribly dangerous in terms of the outbreaks that are ongoing.

Mr. MICA. Again, what I am trying to get is to make certain you have the resources. If you don't have them, we need to know. We need to know that also the things that need to get under contract are under contract for the test kits, for the research, for the vaccine, for moving this little protocol forward.

Dr. Fauci.

Dr. FAUCI. Yeah. So, Mr. Chairman, just so that I can clarify, in order to get a jump start, we took money that we had allocated for things like dengue and moved it over. I will not be able to proceed with the trial that I described to you without additional money.

Mr. MICA. Okay.

Dr. FAUCI. —which is one of the reasons why—

Mr. MICA. See, that's what we need to know—

Dr. FAUCI. I won't be able to do that without additional moneys.

Mr. MICA. We need to tell our colleagues. The request is in. The President gave it to us last week. We'll have to work with our leadership, but we want you to have the funds available. We don't want to neglect important research. And one of the reasons I voted for the omnibus is we have additional money in research. I was told Alzheimer's and some other disease. You can't rob Peter to pay Paul.

Dr. FAUCI. Our summer plans are dependent upon the supplement.

Mr. MICA. Okay. All right.

Well, again, I have other questions, like notifying—you notifying our DOD and overseas personnel through State and DOD. Have they—are there official notices going out and the risks and the warnings and all that?

Dr. SCHUCHAT. Yes. We have been working closely with those departments for the Americans overseas.

Mr. MICA. We've got families and everybody out all around the globe

Dr. SCHUCHAT. Absolutely.

Mr. MICA. I have gone over my time. We'll come back, as we've got plenty of time, as you can see, with the members that are here.

Ms. Duckworth, I'll yield to you. Thank you.

Ms. DUCKWORTH. Thank you, Mr. Chairman.

Dr. Schuchat, I want to sort of build on what the chairman was talking about in terms of notifying travelers who—they are coming back into the United States. I'm wondering about the travelers in the United States who might be on their way out or what information is being provided. What guidance has the CDC provided to the obstetric community in the continental U.S. regarding Zika?

Dr. SCHUCHAT. We have been working very closely with the clinical community, including obstetricians. We have developed joint guidance. We have used—the obstetricians' Web site, in fact, has distributed our guidance broader than we have been able to, to the 65,000 obstetricians in America. And we have held calls and sessions for questions and answers. We are very keen to be letting women know before they travel, and the signage and the outreach is through both direct health clinician channels and through consumer groups as well. I did a Scary Mommy blog, and we have been really working all the social media as well as the professional groups so that women know and that their families know what to expect. We know that women's most trusted source is their own doctor, and so we want their own doctor to know the answers to the questions.

With a breaking syndrome like this, information is updated frequently, so it's not just a one-time guidance, but ongoing updates.

Ms. DUCKWORTH. Is that a similar effort with, I guess, family physicians or groups where—I'm thinking of these countries; if I were travelling to them, I would need to get immunized for a range of other diseases before going anyway. And if I was planning a trip, I would be going to get those particular immunizations. Is Zika also then being added as part of the conversation?

Dr. SCHUCHAT. Yes, that's right. Our travel health site is the most popular site on CDC's Web site, and we work really closely with both the clinical community and the special travel health and travel industry to make sure that people know what to expect where they're going: what to eat and drink or not, and what shots they might need before they travel. So Zika has been added to those messages.

Ms. DUCKWORTH. Thank you.

Dr. Fauci, I'm a big fan of NIH and the work that you do, and I certainly think we should be funding you at far higher levels because it's money—it's a savings; it's an investment. Do you know if there's a specific stage during pregnancy when exposure to Zika is more likely to cause microcephaly?

Dr. FAUCI. We don't know for sure, but if it acts like virtually all other viruses that cause congenital abnormalities, the first trimester is overwhelmingly the most vulnerable. Whether or not individuals who might get infected later on in pregnancy have a degree of adverse event with the pregnancy, it's not entirely clear. I wouldn't be surprised if there are some outliers in which you can have late effects of infection later on. But when you think about this, almost always the first trimester is the most vulnerable.

Ms. DUCKWORTH. And I understand that the severity of the birth defects caused by Zika do vary?

Dr. FAUCI. Very much so.

Ms. DUCKWORTH. Do we have any idea what causes the variance, or is this all part of the learning process that we're in right now?

Dr. FAUCI. It's part of the learning process with regard to Zika, but, again, you use other models, like rubella, CMV, and others, and there isn't just one size fits all. You have a great degree of variability, and it's not surprising that you might have something as severe as microcephaly, to the point of the fetus not even surviving, or you might have birth with just some abnormalities of vision or perhaps some mental issues, so it goes from one end of the extreme to the other. And it's probably just a variability of the penetration of the virus through the placenta to the baby.

Ms. DUCKWORTH. Are those mental issues, do those also include mental illnesses like schizophrenia or bipolar disorder?

Dr. FAUCI. You know, there have been reports in the past, not with Zika yet, of infections that mothers have during early parts of pregnancy and what is apparently an increase in the incidence of certain types of disorders. There is some controversy about that, but there's enough information to suggest that there would be an impact on some aspect of brain function, which might also include things like psychiatric issues.

Ms. DUCKWORTH. Dr. Schuchat, I think you might be the organization that works with the DOD, perhaps. What about military women that are being deployed especially? I served in Operation New Horizon multiple times and various missions in Latin America. What are we doing with DOD, with military men and women who are going over?

Dr. SCHUCHAT. We have been working closely with the military and the Department of State so that our guidance for Americans traveling abroad can be consistent for the military that are serving abroad as well as for the State Department employees and their families. We do think that in places where there's active circulation of Zika virus right now, particularly Latin America, that the ability to—that it's not good for pregnant women to be there. And if they're interested in redeploying elsewhere, I think the departments are working with them on that.

Ms. DUCKWORTH. Is there any plans to do any type of universal testing and monitoring of troops who are assigned there? Most of these are going to be Reserve and National Guard troops also. So they're going. They're in planning. They are going to go. They are going to go do their 3 weeks or their 1 month, and they come back. But it is a nice population that you can track who will go and come back.

Dr. SCHUCHAT. Absolutely. One of the aspects of coordination across the government is the intergovernmental leadership calls that we have, and the DOD is very actively participating in that. They do enormous amounts of research and monitoring and force readiness, so I am not personally aware of whether there is deployment tracking in terms of cohort studies going on, but that is the kind of thing that they are able to do.

Ms. DUCKWORTH. Thank you.

I yield back, Mr. Chairman.

Mr. MICA. I thank the gentlelady.

Mr. DeSaulnier.

Mr. DESAULNIER. Thank you, Mr. Chairman, and thanks to the ranking member, for this really interesting hearing.

And, first off, congratulations to all of you. I'm always very proud of the fact of our robust public health system in the United States. I've worked in local government, State government. It works best when nobody notices. But in this global economy with pandemics, always something we have to be cautious about.

My questions are two lines really of questioning. Dr. Fauci, first of all, how would you characterize the American role in global pandemic preparedness? We are looked at both because Americans travel a lot, but because of our infrastructure as a leader in this, how do we interact with the global community and make sure that we're using our resources in an effective and efficient way, given our position?

Dr. FAUCI. I think we interact quite well, and it's getting better and better. Every time we have a challenge, there are really lessons learned that I think are important, everything from responding to a pandemic influenza or the threat of a pandemic influenza, to the global response to Ebola in which there were several lessons learned. And, even now, all of us are experiencing—like Dr. Schuchat and I were very much involved in the issue with Ebola and as people who are now involved with the issue with Zika—we already see the differences in how the global community has responded in a much more robust way than we did before. So the answer to your question is I think we have done well all along, but we're really doing better now because of experience.

Mr. DESAULNIER. So the global preparedness is going up exponentially, unfortunately, as you get more incidents?

Dr. FAUCI. Yeah, I believe so. And we have a global health security agenda that we're a part of, the United States is part of, which is also part of that preparedness issue.

Mr. DESAULNIER. Doctor, you have from the CDC's perspective?

Dr. SCHUCHAT. Yes. I think people are taking the issues of preparedness very seriously, and the importance of being able to prevent, detect, and respond everywhere is vital, so the U.S. is a leader in that, but we have now got many other countries joining in the process, and the WHO, of course, did jump on this a lot quicker than previously.

Mr. DESAULNIER. So my other line of questioning is similar to the ranking member's. Dr. Fauci, I'm told you were involved when the AIDS epidemic first began. And being from the bay area and being old enough to remember that, even in the bay area, as we were dealing with that and researchers at places like UCSF were dealing with it, many of whom are still practicing, the miscommunication was a huge struggle, the things that people would say, both politically and in terms of our effectiveness. But, now, all these years later, you still have that, but then you have social media. Just curious, you spend a lot of your time, I imagine, correcting misinformation, and how much, if you'd like to talk about that, about what you're learning about how we communicate vis—vis social media and what time you have to expend maybe correcting what's out there, and has that changed over time?

Dr. FAUCI. Well, part of the administration and, in this case, the Department of Health and Human Services, which is the predominant agency involved, is that we try very hard, all of us, to get out there publicly with the media, both the classic media and the social media, myself and Tom Frieden, and Anne Schuchat; we're on the media all the time, TV, radio, et cetera, trying to get the information out.

And what we have learned all the way back from the years of HIV/AIDS is that we want to get correct information out, and when we don't know the answer to something, we say we don't know the answer. And that's the reason why you're hearing us be very cautious, for example, of saying we believe and think that there is a direct causal relationship between infection of a pregnant woman and microcephaly, but we haven't yet done the definitive studies. And the reason we don't want to say anything definitive unless we do the study, because there may be other cofactors that are involved that we don't know about. And if we come out confidently saying something and then it turns out not to be the case, we lose credibility. So we're very careful to only talk on evidence-based as opposed to guessing what we think the answer is.

Mr. DESAULNIER. From the CDC's perspective—

Dr. SCHUCHAT. Yeah. We think that the changes in communication have both benefit and harm. And so, of course, it's much easier to reach a lot of people, but that means it's much easier for everyone to reach a lot of people. So the credibility of the public health folks doing the talking is critical, and we really want to protect that.

Mr. DESAULNIER. I think we're all aware in our world about the benefits and the curses of social media.

Mr. Chairman, I yield back the balance of my time. Thank you very much.

Mr. MICA. I thank the gentleman.

I have a few more followup questions. Okay. We have people in the United States who were infected. They were infected outside. Right now, it's winter across the United States, and we're getting into more of the mosquito season. Do we know if the disease can be transmitted from a mosquito biting an infected person?

Dr. Fauci, do you know? We're gaining in the number of infected people in the United States. It's in their blood. And a mosquito bites them; then we infect the mosquito population here.

Dr. FAUCI. Right. That certainly can happen.

Mr. MICA. I'm not a scientist.

Dr. FAUCI. Well, certainly, that's the way it is spread now in the areas where there is local transmission in South America and the Caribbean. We have those mosquitos in the United States, particularly in a certain region in the Southeast and part along the Gulf Coast. And one of the things that we're preparing for is that we have, as you've heard from Dr. Schuchat and others, a considerable number of imported cases that got infected elsewhere and come home. We're going to see more of those. What will not be surprising is that sometime in the future, we will see local transmission, where just what you're saying happens, where someone comes back. They get bit by a mosquito and transmit—

Mr. MICA. The way you stop that is you stop the mosquito, like we have gone after West Nile. We had West Nile right here in Washington, D.C.

Dr. FAUCI. Right. Exactly. So it's an enhanced mosquito control. And that's exactly what the people in Florida—

Mr. MICA. Okay. That's mostly a State and local issue. I don't know if we are helping those local entities or if they can use their funds. We have CDC funds—not CDC funds. We have it—what is it, community block grants?

Dr. SCHUCHAT. Quite a bit of the emergency request is to be able to support State and local mosquito control. Mosquito control is very patchy right now. And there aren't—

Mr. MICA. In Florida, we're damned good at it because we have had mosquitos in, well, most of the Gulf Coast region. And I've worked in Louisiana along the Gulf Coast of Texas, and they're pretty good at it. But, again, there are places that are not as good at it. And the reaction that Florida has taken is—Florida has set a model already for the United States. But what we want to do is make certain we're covering the rest. It sounds like we have already had a little damage in Puerto Rico, the Virgin Islands, and some of the Caribbean region.

Dr. SCHUCHAT. Yes. The living conditions and the climate in Puerto Rico and the Caribbean are such that the mosquitos are very intense, circulating year around. In areas that actually have good mosquito control in the U.S., the type of mosquito that we're dealing with here is a bit difficult. There are a variety of species. But the *Aedes aegypti* mosquito is a daytime biter. It's inside and outside.

Mr. MICA. Again, public information for folks in the continental United States: You've got to use insect repellent. The local authorities and State have to do more spraying. We can't leave—I've seen some of the recommendations already—even small amounts of standing water are breeding ground for the coming spring and summer.

Dr. SCHUCHAT. It just may need to be more intensive mosquito control because this one is quite difficult, particularly, as I mentioned, in Puerto Rico.

Mr. MICA. Now you didn't mention this, Dr. Moreau, but I read about it and didn't think about it. Did you mention that the games are being held in Brazil in their winter? Did you mention that? It might have been in your written testimony. But folks don't know that, which means that you've got the best chance of not getting infected in Brazil where your Olympics are being held. Is it in July or August? I forget the dates. What is it?

Dr. MOREAU. August for the Olympic Games and September for the Paralympic Games.

Mr. MICA. That's some of your coldest months down there, so you've got your least likely time of being infected for folks that want to go. We want our U.S. team to participate, to be protected, and we want our visitors also to have that. Every time you get a chance, Dr. Moreau, you need to tell folks they have the least chance of being bitten or infected during that period of time because it's the opposite of the northern hemisphere. Okay?

Okay. DOD has already done a lot of work. How have we been coordinating with DOD, Department of Defense? For anyone.

Can you tell us, CDC?

Dr. SCHUCHAT. Maybe I can begin, and Dr. Fauci can continue. There's quite a bit of the intergovernmental coordination across the leadership to do the planning, both for force protection. There's also a lot of research that DOD does, and they are part of our counter-measures group.

Mr. MICA. So we're not duplicating.

Dr. SCHUCHAT. No. And the same with the Ebola research. One of the promising vaccines was developed originally through military work, so I would say the coordination is good.

Mr. MICA. What would you say, Dr. Fauci?

Dr. FAUCI. I totally agree. In fact, we have worked with the DOD on a number of issues, the most recent of which was Ebola. We'll be doing it here, and we have very good coordination, and it comes centrally. I mean, we coordinate within HHS, but through NSC, we coordinate among all the agencies.

Mr. MICA. At this point in the record—and with your permission, Ms. Duckworth—I'll enter in the record, and we're trying to get everybody who is involved here, their testimony, and we asked DOD, who is not a witness. We have testimony from the Department of Defense. We have testimony from U.S. Agency for International Development and testimony from the American Mosquito Control Association.

And the gentlelady moves that this be made part of the record. Without objection, so ordered.

Mr. MICA. So we'll put that in the record at this point. Because, again, I've got three—well, two Federal agencies here, and we have got the State witness association here for our Olympic Committee, and we need to know that we have a coordinated and seamless connect with all of our agencies.

Did you want to comment any more on DOD?

Okay. I just saw here that there is research outside the United States, a British technology company—I don't know the name—is currently testing a genetically modified mosquito named, a famous mosquito named OX513A in Brazil. Are you aware of this, Dr. Fauci?

Dr. FAUCI. Yes.

Mr. MICA. Are we doing anything with these folks?

Dr. FAUCI. Yes, we are. The idea of genetically modified mosquitos, which you make a male sterile and release it into the environment, is something—

Mr. MICA. And they released some of these on an island already?

Dr. FAUCI. Yes, they have. The release of genetically modified mosquitos in order to prevent the procreation of other mosquitos is something that has been tried in local ways where you would go into a relatively restricted geographic area, and it seems to be rather effective at a local level. The challenge with genetically modified mosquitos in addition to somewhat of the societal pushback about anything genetically modified being released into the environment is that it's difficult to scale it up on a countrywide basis. That's one of the problems we have with that.

Mr. MICA. Okay. So, again, I'm just trying to find out if we're covering all of our bases here. Then you've got—and I'm learning more as we go along—you recommended, CDC, some of the insect repellent. And I just found out—I didn't know they had this—this is insect repellent for clothing and gear. And our all-knowledgeable ranking member, who knows about DOD, said: Yes, they have this, but they've also found it causes cancer.

This seems like a good product. And I go down to like Puerto Rico all the time, one of my favorite places to visit. I just came back after the holidays. But is this stuff good to use, and are you guys recommending that? CDC, tell us if the cure is worse than the disease.

Dr. SCHUCHAT. We work really closely with the EPA, who registers insecticides and repellents and so forth, and so our Web site has a link to what is okayed and what is not. So there are many repellents, and then there is permethrin treatment for the clothing, which some of the products are fine.

Mr. MICA. The staff said that you said this is okay. But I'll also be conscious of the warning of my very knowledgeable ranking member.

Ms. DUCKWORTH. We used to soak our uniforms in it.

Mr. MICA. She said they used to soak their uniforms in it. I've never heard of it, but it's just interesting. Again, getting information out to people how they can protect themselves is so important, so it covered some of that.

I was kind of shocked the first time I've heard your 62 days, at least for the males, to possibly be infected and have a—pose some risk. I've not seen that before. Is that the first time you've announced it today?

Dr. FAUCI. That report has been out for a few weeks now—

Mr. MICA. I've not heard it publicly. I've heard 21 to 30 days advisory, which is a different situation, but I think we need to be aware of that. I appreciate your making it known publicly.

Dr. Armstrong, you haven't been neglected, and we appreciate your coming here. Okay. You're at the other end of the spectrum. I've gotten a good report from our local health officials, quick response from the Governor, the quick response from you at the State level. Tell us, candid—I know it's awkward having CDC and NIH here—is there something we're missing? Is there something you could recommend that we should pay attention to from the State level and local? You're on the front line.

Dr. ARMSTRONG. Thank you for your question. We have to manage the situation in the State and locally with what we know. And what we have appreciated is guidance from the CDC now that is acknowledging uncertainty and what we don't know and helping us to really provide insights for people out of an abundance of caution so that we keep them safe. I think that's been a key change from Ebola to Zika, that there is acknowledgement by the CDC that just because they don't have a definitive answer to something doesn't mean something doesn't need to be said. We still need a guideline, and we, again, are leveraging all of the CDC guidelines to protect the people of Florida and our visitors.

Mr. MICA. Question, a followup to my question to Dr. Fauci about the genetically modified organisms. I guess there was some effort

in Florida to curtail some mosquito-borne threats in Florida using that approach. Are you aware of that?

Dr. ARMSTRONG. Yes, I am aware of that in the past, and I think that—

Mr. MICA. —that's a route we should take? Was that successful? What did we use that on? I don't recall.

Dr. ARMSTRONG. I'll have to get you the specific virus against which we were using a mosquito approach, but I would echo what Dr. Fauci says. I think there needs to be a great deal of public awareness and education before doing that, and we need to be aware of unintended consequences from producing genetically modified mosquitos.

Mr. MICA. Now the other thing is you're at the State level; you're at the Federal level. When I spoke with one of our local health directors, he said: We get these cases. And he says: We're also responsible for monitoring the individuals who are infected. He says: Well, we have very limited staff, and I need people then to be the monitors. And as you get multiple people, you need multiple staff checking up on them. So some of the resources to the local entities to actually monitor these folks, it appears it might be putting a strain on them. Do you have a way of dealing with that? Do we have some emergency funds at the State level to make certain that folks who are infected are monitored?

Dr. ARMSTRONG. At this point, we are applying what we learned through monitoring for Ebola virus. We had a very aggressive program—

Mr. MICA. Yes, they told me, actually—listen to this—he said, “One way we would go,” when they thought someone was infected with Ebola, he said they would come with a sign, “what's your temperature,” he says, because you didn't want to come in contact with them. That was a different situation, but you have to modify your approach to the risk even for the worker. My concern was the funds to make certain you have the workers who can go out and monitor these folks. Right now, these are very limited numbers, but we'll have to make certain at a State level or on an emergency basis if we see where we've got to have additional personnel, that that need is met. I think those are the major questions.

Again, we have some serious issues here. We have done—or you all have done—we have done nothing yet—but you've done a great job in staying ahead of it. Usually, this committee is very harsh on folks, and we had some tough time with the start of Ebola and some other issues, but I'm very pleased with where we are right now. We just want to keep it under control and go forward.

Did you have anything else Ms. Duckworth?

Mr. DeSaulnier?

We'll, again, keep the record open for additional questions for our witnesses and make any responses part of the record today.

I want to thank each of you for your good work, for testifying today, and look forward to working with you, and we'll try to pledge ourselves to get the resources that are necessary in a timely fashion.

There being no further business before the subcommittee, this hearing is adjourned.

[Whereupon, at 3:25 p.m., the subcommittee was adjourned.]

APPENDIX

MATERIAL SUBMITTED FOR THE HEARING RECORD



*Individuals enhancing the health and quality of life
through the suppression of mosquitoes, other vectors
and pests of public health importance.*

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**STATEMENT OF THE
AMERICAN MOSQUITO CONTROL ASSOCIATION**

**HOUSE OVERSIGHT AND GOVERNMENT REFORM COMMITTEE
HEARING ON
ZIKA VIRUS: COORDINATION OF A MULTI-AGENCY RESPONSE
February 24, 2016**

Chairman Chaffetz and Ranking Member Cummings, thank you for considering the views of the American Mosquito Control Association (AMCA) concerning Zika virus and its threat to public health.

The AMCA is a scientific/educational association of vector control professionals an over 1600 organized mosquito control programs nationwide that provide mosquito control services to protect public health.

Zika virus causes illness in both men and women, and has been associated with horrific birth defects in newborns. Preventing an outbreak of Zika virus disease in the U.S. this summer is a must win. We recommend Congress and the President consider three immediate actions that will help protect public health dramatically.

First, we encourage Congress to authorize supplemental funding for 2016 and increased funding in FY 2017 to support vector-borne disease surveillance. Funding should be allocated through the Centers for Disease Control and Prevention's (CDC's) Division of Vector-Borne Diseases. The Epidemiology and Laboratory Capacity (ELC) grant program provides local health jurisdictions with personnel, equipment and resources to detect and respond to mosquito transmitted diseases, but the program in its current state is insufficient to prevent the spread of the Zika virus.

Second, we request that Congress fully fund the Food Quality Protection Act (FQPA) provisions for proven public health pesticides. In 1996 Congress unanimously approved FQPA (PL 104-170) to modernize the regulation of pesticide and expand data requirements to demonstrate their safety to people and the environment. A key element was authorization to use federal funds when the cost of new data for public health pesticides – those for mosquitoes and similar disease vectors – was more than their producers could afford, putting registration at risk. Unfortunately, these essential funds have never been appropriated, and we are now losing critical public health tools because the cost to prove their safety is higher than

American Mosquito Control Association
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their sales can cover.

Finally, use the Mosquito Abatement for Safety and Health (MASH) Act to support local government mosquito control activities. *Aedes aegypti* and *Aedes albopictus*, the two mosquito species that spread Zika, dengue, Chikungunya, and yellow fever, are notoriously hard to prevent or kill. They live in our houses, their eggs can withstand months of drying, and their young can develop in water containers as small as a bottle cap. Draining standing water helps, but requires massive manpower for area-wide control, and isn't a long-term solution. No predator eats enough mosquitoes to provide effective biological control. Repellents do protect individuals, but also redirect the adult mosquitoes to bite somebody else.

Therefore, we urge Congress to fully fund the MASH Act (PL 108-75) which passed with bipartisan support during the West Nile virus outbreak. This bill authorized federal funds for local governments to protect our communities from mosquitoes and other disease vectors. But by the time the MASH Act was signed into law the West Nile crisis had largely passed and no funds were ever appropriated. Today we face another imminent outbreak of a disease for which mosquito control is the only viable short-term solution. Fortunately Congress has the means readily at hand to help prevent or minimize the risk if it chooses to devote dollars to the existing authority.

Vector-borne diseases, whether ancient like malaria or relatively new like Zika, are an unfortunate reality, and Zika won't be the last. There are many factors that contribute to the emergence of novel vector-borne diseases, including poverty, climate change, and global trade. They will require long-term solutions. We should develop vaccines and treatments, but these are also years away. What will work today is to protect our homeland and our neighbors through effective vector control.

These low-cost, non-partisan actions taken now will help ensure the safety and health of the American people.

Thank you for considering AMCA's views and recommendations on this important public health issue.

ZIKA VIRUS DISEASE – FREQUENTLY ASKED QUESTIONS

The following information was provided by the U.S. Centers for Disease Control and Prevention and available on their website at the links provided [here](#) and [here](#).

About Zika Virus Disease:

What is Zika virus disease (Zika)?

Zika is a disease caused by Zika virus that is spread to people primarily through the bite of an infected Aedes species mosquito. The most common symptoms of Zika are fever, rash, joint pain, and conjunctivitis (red eyes). The illness is usually mild with symptoms lasting for several days to a week. People usually don't get sick enough to go to the hospital, and they very rarely die of Zika.

What are the symptoms of Zika?

About 1 in 5 people infected with Zika will get sick. For people who get sick, the illness is usually mild. For this reason, many people might not realize they have been infected.

The most common symptoms of Zika virus disease are fever, rash, joint pain, or conjunctivitis (red eyes). Symptoms typically begin 2 to 7 days after being bitten by an infected mosquito.

How is Zika transmitted?

Zika is primarily transmitted through the bite of infected Aedes mosquitoes, the same mosquitoes that spread Chikungunya and dengue. These mosquitoes are aggressive daytime biters and they can also bite at night. Mosquitoes become infected when they bite a person already infected with the virus. Infected mosquitoes can then spread the virus to other people through bites. It can also be transmitted from a pregnant mother to her baby during pregnancy or around the time of birth. We are studying how some mothers can pass the virus to their babies.

Who is at risk of being infected?

Anyone who lives in or travels to an area where Zika virus is found and has not already been infected with Zika virus can get it from mosquito bites.

What countries have Zika?

Specific areas where Zika virus transmission is ongoing are often difficult to determine and are likely to change over time. If traveling, please visit [the CDC Travelers' Health site](#) for the most updated travel information.

What can people do to prevent becoming infected with Zika?

There is no vaccine to prevent Zika. The best way to prevent diseases spread by mosquitoes is to protect yourself and your family from mosquito bites. Here's how:

- *Wear long-sleeved shirts and long pants.*
- *Stay in places with air conditioning or that use window and door screens to keep mosquitoes outside.*
- *Use Environmental Protection Agency (EPA)-registered insect repellents. All EPA-registered insect repellents are evaluated for safety and effectiveness.*
 - *Always follow the product label instructions.*
 - *Reapply insect repellent as directed.*

- Do not spray repellent on the skin under clothing.
- If you are also using sunscreen, apply sunscreen before applying insect repellent.
- If you have a baby or child:
 - Do not use insect repellent on babies younger than 2 months of age.
 - Dress your child in clothing that covers arms and legs, or
 - Cover crib, stroller, and baby carrier with mosquito netting.
 - Do not apply insect repellent onto a child's hands, eyes, mouth, and cut or irritated skin.
 - Adults: Spray insect repellent onto your hands and then apply to a child's face.
- Treat clothing and gear with permethrin or buy permethrin-treated items.
 - Treated clothing remains protective after multiple washings. See product information to learn how long the protection will last.
 - If treating items yourself, follow the product instructions carefully.
 - Do **NOT** use permethrin products directly on skin. They are intended to treat clothing.
- Sleep under a mosquito bed net if you are overseas or outside and are not able to protect yourself from mosquito bites.

What is the treatment for Zika?

There is no vaccine or specific medicine to treat Zika virus infections.

Treat the symptoms:

- Get plenty of rest.
- Drink fluids to prevent dehydration.
- Take medicine such as acetaminophen to reduce fever and pain.
- Do not take aspirin or other non-steroidal anti-inflammatory drugs.
- If you are taking medicine for another medical condition, talk to your healthcare provider before taking additional medication.

How is Zika diagnosed?

- See your healthcare provider if you develop symptoms (fever, rash, joint pain, red eyes). If you have recently traveled, tell your healthcare provider.
- Your healthcare provider may order blood tests to look for Zika or other similar viral diseases like dengue or chikungunya.

What should I do if I have Zika?

Treat the symptoms:

- Get plenty of rest
- Drink fluids to prevent dehydration
- Take medicine such as acetaminophen to reduce fever and pain
- Do not take aspirin or other non-steroidal anti-inflammatory drugs

Protect others: During the first week of infection, Zika virus can be found in the blood and passed from an infected person to another person through mosquito bites. An infected mosquito can then spread the virus to other people. To help prevent others from getting sick, avoid mosquito bites during the first week of illness.

See your healthcare provider if you are pregnant and develop a fever, rash, joint pain, or red eyes within 2 weeks after traveling to a place where Zika has been reported. Be sure to tell your health care provider where you traveled.

Is there a vaccine to prevent or medicine to treat Zika?

No. There is no vaccine to prevent infection or medicine to treat Zika.

Are you immune for life once infected?

Once a person has been infected, he or she is likely to be protected from future infections.

Does Zika virus infection in pregnant women cause birth defects?

There have been reports of a serious birth defect of the brain called microcephaly (a condition in which a baby's head is smaller than expected when compared to babies of the same sex and age) and other poor pregnancy outcomes in babies of mothers who were infected with Zika virus while pregnant. Knowledge of the link between Zika and these outcomes is evolving, but until more is known, CDC recommends special precautions for the following groups:

- Women who are pregnant (in any trimester):
 - Consider postponing travel to any area where Zika virus transmission is ongoing.
 - If you must travel to one of these areas, talk to your doctor first and strictly follow steps to prevent mosquito bites during your trip.
- Women who are trying to become pregnant:
 - Before you travel, talk to your doctor about your plans to become pregnant and the risk of Zika virus infection.
 - Strictly follow steps to prevent mosquito bites during your trip.

Does Zika virus infection cause Guillain-Barré syndrome (GBS)?

Guillain-Barré syndrome (GBS) is a rare disorder where a person's own immune system damages the nerve cells, causing muscle weakness and sometimes, paralysis. These symptoms can last a few weeks or several months. While most people fully recover from GBS, some people have permanent damage and in rare cases, people have died.

We do not know if Zika virus infection causes GBS. It is difficult to determine if any particular germ "causes" GBS. The Brazil Ministry of Health (MOH) is reporting an increased number of people affected with GBS. CDC is collaborating with the Brazil MOH to determine if having Zika makes it more likely you will get GBS.

Is this a new virus?

No. Outbreaks of Zika previously have been reported in tropical Africa, Southeast Asia, and the Pacific Islands. Zika virus likely will continue to spread to new areas. In May 2015, the Pan American Health Organization (PAHO) issued an alert regarding the first confirmed Zika virus infection in Brazil. Since that time, local transmission has been reported in many other countries and territories.

How many travel-associated cases have been diagnosed in the United States?

CDC continues to work with states to monitor the United States for mosquito-borne diseases, including Zika. As an arboviral disease, Zika is nationally notifiable. Healthcare providers are encouraged to report suspected cases to their state or local health departments to facilitate diagnosis and mitigate the risk of local transmission. To date, local vector-borne transmission of Zika virus has **not** been identified in the continental United States. Limited local transmission may occur in the mainland United States but it's unlikely that we will see widespread transmission of Zika in the mainland U.S.

Should we be concerned about Zika in the United States?

The U.S. mainland does have *Aedes* species mosquitoes that can become infected with and spread Zika virus. U.S. travelers who visit a country where Zika is found could become infected if bitten by a mosquito. With the recent outbreaks, the number of Zika virus disease cases among travelers visiting or returning to the United States will likely increase. These imported cases may result in local spread of the virus in some areas of the United States. CDC has been monitoring these epidemics and is prepared to address cases imported into the United States and cases transmitted locally.

What is CDC doing about Zika?

CDC has been aware of Zika for some time and has been preparing for its possible introduction into the United States. Laboratories in many countries have been trained to test for chikungunya and dengue. These skills have prepared these laboratories for Zika testing. CDC is working with international public health partners and with state health departments to

- Alert healthcare providers and the public about Zika.
- Post travel notices and other travel-related guidance.
- Provide state health laboratories with diagnostic tests.
- Detect and report cases, which will help prevent further spread.

The arrival of Zika in the Americas demonstrates the risks posed by this and other exotic viruses. CDC's health security plans are designed to effectively monitor for disease, equip diagnostic laboratories, and support mosquito control programs both in the United States and around the world.

Zika Virus Disease and Travel

What places have outbreaks of Zika?

Local transmission of Zika has been reported in many countries and territories. Specific areas where Zika is spreading are often difficult to determine and will likely change over time. Check CDC's Zika Travel Information webpage often for the most up-to-date travel recommendations.

Should pregnant women travel to places with Zika outbreaks?

Zika virus can be spread from a pregnant woman to her unborn baby. There have been reports of a serious birth defect of the brain called microcephaly in babies of mothers who had Zika virus while pregnant. Knowledge of the link between Zika and birth defects is evolving, but until more is known, CDC recommends special precautions for pregnant women. Pregnant women in any trimester should consider postponing travel to any area where Zika virus is spreading. If you must travel to one of these areas, talk to your healthcare provider first and strictly follow steps to prevent mosquito bites during your trip.

Should women trying to get pregnant travel to places with Zika outbreaks?

Until more is known, CDC recommends that women trying to get pregnant and their male partners talk to their healthcare provider before traveling to areas with Zika. Because sexual transmission is possible, both men and women should strictly follow steps to prevent mosquito bites during the trip.

Areas where Zika is spreading will likely change over time. Check CDC's travel website often for a current list of areas with Zika. Specific areas where Zika virus is spreading are often difficult to determine and are likely to change. As more information becomes available, travel notices will be updated. Please check back frequently for the most up-to-date recommendations.

Zika Virus Disease and Pregnancy

Can mothers pass Zika on to their babies during pregnancy?

Zika virus can be passed from a mother to her baby during pregnancy. We are studying how some mothers can pass the virus to their babies.

What should a pregnant woman do if she has previously traveled to a place with a Zika outbreak?

Pregnant women who have recently traveled to an area with Zika should talk to a healthcare provider about their travel even if they don't feel sick. CDC has guidance to help doctors decide what tests are needed for pregnant women who may have been exposed to Zika and what tests are needed for unborn babies. CDC recommends that all pregnant women who have traveled to an area with Zika talk to their doctors. It is especially important that pregnant women see a doctor if they develop a fever, rash, joint pain, or red eyes during their trip or within 2 weeks after traveling to a country where Zika has been reported. They should tell the doctor where they traveled.

What should a pregnant woman do if she gets sick during or after travel to a place with a Zika outbreak?

Pregnant women who are worried that they had Zika should talk to their healthcare provider and tell their provider about their recent travel. It is especially important for a pregnant woman to see a doctor if she develops a fever, rash, joint pain, or red eyes during her trip or within 2 weeks after traveling to an area with Zika. CDC has guidance to help doctors decide what tests are needed for pregnant women who may have been exposed to Zika and what tests are needed for unborn babies.

Information for healthcare providers can be found on the Zika virus [Information for Health Care Providers](#) webpage.

Does Zika in pregnant women cause birth defects?

Brazil has been having a significant outbreak of Zika virus since May 2015. Officials in Brazil have also noted an increase in the number of babies with congenital microcephaly (a birth defect in which the size of a baby's head is smaller than expected for age and sex) during that time. Congenital microcephaly is often a sign of the brain not developing normally during pregnancy. Health authorities in Brazil, with assistance from the Pan American Health Organization, CDC, and other agencies, have been investigating the possible association between Zika virus infection and microcephaly.

Additional studies are needed to determine the degree to which Zika might be linked with microcephaly. More lab testing and other studies are planned to learn more about the risks of Zika virus infection during pregnancy.

Because of the possible association between Zika infection and microcephaly, pregnant women should take steps to prevent mosquito bites.

Effects of Zika on Future Pregnancies

Can a previous Zika infection cause a woman who later gets pregnant to have a baby with microcephaly?

Currently, there is no evidence to suggest that Zika virus infection poses a risk of birth defects for future pregnancies. Zika virus usually remains in the blood of an infected person for about a week. The virus will not cause birth defects in a baby that is conceived after the virus is cleared from the blood.

Is it safe to get pregnant after traveling to a place with a Zika outbreak?

Women thinking about getting pregnant who have recently traveled to an area with Zika should talk to their healthcare provider. Once a person becomes sick, Zika virus usually remains in the blood for about

a week. Zika virus has been found in semen for up to two weeks. There is no evidence that the virus will cause birth defects in a baby that is conceived after the virus is cleared from the semen of the father and from the blood of the mother.

Prevention

Is there a vaccine or medicine for Zika?

No. There is no vaccine or medicine for Zika.

How can people protect themselves against Zika?

The best way to prevent Zika is to prevent mosquito bites. Here's how...

- Wear long-sleeved shirts and long pants.
- Stay in places with air conditioning or that use window and door screens to keep mosquitoes outside.
- Use Environmental Protection Agency (EPA)-registered insect repellents (bug spray). Always follow the instructions on the label and reapply every few hours.
- Eliminate mosquito breeding sites, like containers with standing water.

Visit CDC's website for more information about preventing mosquito bites.

Can pregnant and breastfeeding women use insect repellent?

Yes. Use EPA-registered insect repellents. When used as directed, these insect repellents are proven safe and effective even for pregnant and breastfeeding women. Some natural products are EPA-registered. The effectiveness of non-EPA registered insect repellents is NOT known. Insect repellents registered by the EPA can be expected to repel the mosquitoes that spread Zika, provided the EPA-approved labeling says the product is for use to protect against mosquitoes in general or against Aedes mosquitoes in particular. An example of a natural product with an EPA registration is oil of lemon eucalyptus.

Testing

Should a pregnant woman who lives in or has traveled to a place with a Zika outbreak be tested for the virus?

CDC has guidance to help healthcare providers decide what tests are needed for pregnant women who may have been exposed to Zika and what tests are needed for unborn babies. CDC recommends that all pregnant women who have traveled to a place with a Zika outbreak get tested. It is especially important for pregnant women to see a doctor if they develop a fever, rash, joint pain, or red eyes during their trip or within 2 weeks after traveling to an area with Zika. Be sure to tell your doctor where you traveled.

*Source: Centers for Disease Control and Prevention
<http://www.cdc.gov/zika/disease-qa.html>
<http://www.cdc.gov/zika/pregnancy/question-answers.html>

**Ariel Pablos-Mendez, MD, MPH
Assistant Administrator for Global Health
U.S. Agency for International Development**

**Hearing before the
House Committee on Oversight and Government Reform**

February 24, 2016

Thank you Chairman Chaffetz, Ranking Member Cummings, and distinguished members of the Committee for inviting me to submit a statement on the U.S. Agency for International Development's (USAID) response to the Zika virus outbreak and coordination within the U.S. Government. I want to thank you for your attention to this important issue. We see you as partners in USAID's mission to end extreme poverty, and promote resilient, democratic societies while advancing our security and prosperity.

On Monday, the President submitted a Fiscal Year 2016 supplemental request to aggressively respond to the Zika virus outbreak. The request includes funding that will allow USAID to help countries affected by the Zika virus respond and protect their citizens. In my testimony today, I will describe what USAID is prepared to do with existing and supplemental resources to respond as part of an interagency effort, discuss Zika within the context of the challenges of infectious diseases, and share what we and other partners are doing to help countries around the world prevent, detect and respond to infectious diseases.

A serious concern

On February 1, the World Health Organization announced that the recent cluster of microcephaly and other neurological disorders reported in the Americas constitutes a Public Health Emergency of International Concern. There is a temporal association between this cluster and Zika virus disease outbreaks in this region. This cluster of microcephaly cases is not only devastating for the affected children and their families but it also raises many questions for pregnant women and their families across the Americas.

Zika was first identified in Uganda in 1947, and has been found to cause illness in Africa and Asia, before the recent outbreaks in Latin America, the Caribbean and Pacific Islands. But, our knowledge of the virus and its relationship to the microcephaly cases has many gaps, and studies are underway to better understand the morbidities caused by the virus.

However, it is important to recognize that national surveillance systems, laboratory capacity, and preparedness across the developing world are insufficient to deal with the influx of new and emerging pathogens. It is estimated that of the 194 countries committed to International Health Regulations, only 35 percent are fully prepared to detect and respond to pandemic threats. USAID, along with our interagency and international partners, is working to address this shortfall through many of our existing programs, including through Ebola response and recovery activities that build global health security capacity and through USAID's emerging pandemic

threats and other infectious disease programs. In addition, there are also tools, albeit limited, at our disposal to slow the transmission of Zika virus by the *Aedes* genus of mosquito. Vector control of adult *Aedes* mosquitos is difficult to implement correctly and is labor- and cost-intensive. We need new tools and enhanced capacity, and support for this work is reflected in the President's request.

Proposed activities

Today you will hear from my colleagues at the Centers for Disease Control and Prevention (CDC) as well as the National Institutes of Health (NIH), about their efforts to develop new tools and diagnostics to address this virus. USAID is uniquely positioned to take these new tools and techniques and apply them to the Zika virus outbreak. Building on lessons learned from Ebola, USAID will roll out communication/behavior change campaigns in association with our CDC, WHO/PAHO and local partners; support community implementation of integrated vector management strategies; help ensure that women in affected countries have access to appropriate health care and support and the best information available – recognizing that the best information is indeed changing quickly; and in collaboration with our CDC and NIH and other research colleagues, use some of the approaches USAID has in place to leverage the private sector and speed the development and introduction of innovations to address Zika and other infectious diseases.

Due to USAID's long-standing relationships with national governments, international organizations, non-governmental organizations and the private sector, we will look to find ways to build on each country's existing maternal and child health, reproductive health, and HIV/AIDS platforms to respond to this virus. We are prepared to begin our efforts in the Americas and expand into other regions as needed.

Expanding our programming, utilizing these new tools and building capacity will require resources. As such, the FY 2016 supplemental request for the Zika virus includes \$335 million for programs to be implemented by USAID. Following are the specific components of the FY 2016 supplemental request for USAID:

Communication/Behavior Change Strategy:

There are immediate needs and opportunities for clear and important messaging about the virus. The content of the messaging will be iterative and will reflect new information as it becomes available. Empowering communities to take actions to protect themselves is key to protecting communities from the Zika virus as well as other mosquito-borne diseases. As our recent experience in West Africa during the Ebola outbreak has shown, even in the absence of readily available medical countermeasures, providing communities with actionable information results in reduced infection rates and incidence. Key to successful community action is involving community voices so that together solutions are developed and executed.

For example, communications messaging can reinforce national vector control operations that target the mosquitoes that are spreading the virus. Successful control of the mosquitoes, and ultimately the spread of the virus, is very much dependent on communities adopting local

environmental control measures to reduce the mosquito populations, such as reducing standing water in tires or other receptacles, and assessing the local environment to determine where the mosquitoes are most likely to breed – and eliminating those breeding sites. It is important to note that the measures being proposed to respond to the Zika virus will also prove to be equally effective against diseases, such as dengue and chikungunya, which are spread by the same mosquito species.

In addition, we will couple community level messaging with comprehensive mass media and social media messaging campaigns that will include partnerships with communications firms and large corporations, particularly in Latin America. We will build on messaging best practices that were learned in West Africa and will seek to leverage funding as much as possible from other donors and the private sector. For example, in West Africa during the Ebola outbreak, USAID partnered with BBC Media Action and the Paul Allen Foundation to implement a large-scale effort to educate the public on how to mitigate the risks of Ebola. This proved highly effective, and the technical inputs were provided by USAID while most of the operational costs were borne by our private sector partners.

Community Implementation of Integrated Vector Management:

USAID will support implementation of a package of integrated vector management activities in communities at risk of the Zika virus to mitigate mosquito exposure. These activities could include robust community mobilization campaigns tailored to each community to actively reduce/eliminate standing water sources where *Aedes* mosquitos breed, focal larviciding based on vector mapping and resistance data to eliminate major breeding sites, and window and door screening to reduce mosquito entry into homes and other important community settings such as schools, hospitals and workplaces. This effort will complement the communication/behavior change campaign and be integrated into community mobilization activities to reinforce personal protection measures, such as appropriate clothing to reduce skin exposure, repellents, etc. All of this work would follow standard environmental safeguards. These integrated vector management efforts will also incorporate new vector control tools as they become available including insecticide-based products and interventions deemed effective against *Aedes* mosquitos. These efforts will build upon the foundation of experience and learning under the successful President's Malaria Initiative vector control programs in Africa, while also tailoring the interventions to the specific breeding patterns and feeding behaviors of *Aedes* mosquitos, which are different than the malaria-transmitting *Anopheles* mosquito.

Maternal Health Care:

Health care workers are a direct link to the community and in many situations the “first responder” when a health event occurs. USAID has extensive partnerships and platforms to strengthen the capacity of health care workers to provide clear counseling and care to at risk or affected families. Building on USAID and the USG's existing PEPFAR, maternal and child health, and family planning platforms, we will expand access to care and support for impacted women and their families. As we have seen with dengue, good patient care is a critical component of an effective and comprehensive program. This includes support for training of health care workers, and updating the information and training as new data becomes available;

providing support for pregnant women, including helping them access repellent to protect against mosquitos; ensuring access to voluntary family planning information, services, and methods; and providing information about microcephaly and best practices for supporting children with microcephaly.

Innovations:

My colleagues from NIH and CDC have described the critically important research they are currently supporting to address the Zika virus and other vector borne diseases. They will work diligently to develop urgently needed tools and understand the relationship between the Zika virus and birth defects. As we have seen in other areas, use of market incentives can also speed the development of these new tools and help get them quickly into use.

For example, market incentives can be used throughout the development process, from catalyzing early-stage development of diagnostics, therapeutics and vaccines or other tools, to incentivizing more costly late-stage product development, manufacturing and scale. Product development partnerships such as FIND – the Foundation for Innovative New Diagnostics – have been successful in partnering with the biopharmaceutical companies to accelerate the development of global health innovations. For example, FIND has partnered with small biotechnology firms to push the development of critically needed diagnostics for neglected diseases, including the Xpert MTB/RIF drug-resistant tuberculosis diagnostic tool. Multi-donor partnerships such as Gavi, the Vaccine Alliance have played a critical role incentivizing development and manufacturing of late-stage vaccines. Gavi recently announced a small advance purchase commitment of an Ebola vaccine to pull the late stage vaccine toward licensure. USAID has been a proud supporter of Gavi and collaborated closely with FIND. These kinds of approaches could be very valuable for pushing forward innovations for detecting, preventing and treating Zika virus.

USAID has also had tremendous success with its Grand Challenges for Development initiative, sourcing groundbreaking innovations from all over the world. Areas of focus of a new Grand Challenge could include innovative solutions to address critical shortcomings in diagnostics, vector control, personal protection and community engagement. USAID is prepared to build on the successes of the Grand Challenge undertaken during the Ebola epidemic.

The Ebola Grand Challenge demonstrated that it is possible to rapidly source new innovations during an outbreak to address key gaps in our response. The Challenge generated over 1,500 ideas within weeks of launching and USAID – in close partnership with the White House Office of Science and Technology Policy, CDC and the Department of Defense – selected 14 promising innovations across five areas including:

- Healthcare Worker Safety: Re-engineered protective suits and improved methods of decontamination.
- Cutting-Edge Health Care Worker Tools: A wearable, Bluetooth-enabled patient sensor to track key patient vitals remotely.
- Rapidly Deployable Ebola Treatment Centers (ETCs): Modular ETCs that can be deployed and stood up in days.

- Behavior Change: Song contest in Guinea with top West African musicians.
- Health Information Technology: Open-source mobile platform for health data collection, decision support, patient tracking and an integrated health management system that supports contact tracing and clinical case management.

Several of these innovations are already in use now; others are in testing and are close to approval. For example, CommCare and mHero is used to support contact tracing, health care worker decision support tools, and two-way communication between health care workers and government officials for real-time information sharing. Another example is Drip Assist, a low-cost, battery-powered infusion monitor that delivers fluids with precision to patients, eliminating the risk of fluid overload and enhancing survival. This device received FDA approval last fall and is beginning to roll out. We also supported user testing in Sierra Leone where it was viewed as a real game-changer for healthcare workers who struggle to ensure that their patients get the fluids they need with current tools. The Ebola Grand Challenge also reminded us, however, that while we can source new innovations quickly, research and development can be a lengthy process – particularly in health where safety is paramount. We will look to ensure that any investments we make for the latest outbreak also help to ensure that we are equipped with the most cutting-edge tools to respond to and, ideally prevent, outbreaks of tomorrow.

Zika, the changing ecological landscape, and the Global Health Security Agenda

Zika, like MERS, SARS, avian influenza, and Ebola all point to a changing landscape where the interaction between humans, animals, and vectors is vastly different and constantly evolving. Ecological and climate change in an increasingly interconnected world mean that mosquito borne diseases such as Zika can appear in areas they had not been before. These rapidly changing dynamics are fundamentally altering the emergence patterns of zoonotic and vector borne diseases, and increase the likelihood of new spillover and amplification opportunities for these pathogens into human populations.

In February 2014, the United States joined with other countries to launch the Global Health Security Agenda (GHSA). GHSA is an international effort to build capacity to prevent, detect and respond to infectious diseases, and to build political commitment to ensure appropriate action is taken when needed. For the United States, the engagement in and support for GHSA is very much an interagency effort, much like the response to Zika virus.

As we address the immediate needs of the Zika-affected populations and respond to the potential further spread of the virus, we must take this opportunity to further illuminate the need for improved national systems to prevent, detect, and respond to high consequence pathogens. This effort is at the heart of the GHSA.

If there is anything that Zika has already taught us, it is that there will be a next time – another pathogen that spills into humans with the potential to amplify and spread beyond borders. Our short-term investments in response to and recovery from the Zika virus must be balanced with an outlook for preparing and equipping those countries already committed to the International Health Regulations and Global Health Security Agenda with national preparedness platforms,

improved surveillance systems, sustainable diagnostic capabilities, and flexible multi-sectoral response plans.

USAID is one of a number of U.S. government agencies deeply committed to helping achieve the objectives of GHSA. We are working in very close partnership with the White House and our colleagues at the Department of Health and Human Services, including CDC and NIH; the State Department; the Department of Defense, and U.S. Department of Agriculture, among others. Through GHSA, USAID builds on the significant investments we have made over the past 10 years.

Our work on building zoonotic disease capacity – or “One Health” recognizes the close connection between animal and human health. This work focuses on building those capacities and expanding the evidence base that contribute to mitigating the impact of novel “high consequence pathogens” arising from animals – the primary reservoir for most emerging disease threats.

At the country level, we work with governments and other key in-country, regional and international partners to characterize the key drivers of disease emergence—from deforestation and land use change to wildlife trade and livestock product demands. This information, along with other investments to strengthen country-level capacities for routine infectious disease detection and outbreak response, have been used to improve surveillance and response as well as to develop risk-mitigation strategies. This work has significantly refined our understanding of the “drivers” that underlie disease emergence and established important new partnerships and platforms for even more timely and effective prevention, detection, and control of future threats. The program draws from across the private sector, universities and non-governmental organizations, as well as UN technical agencies.

GHSA as a global partnership is focused on accelerating progress toward making the world safe from the threats posed by emerging infectious diseases. GHSA recognizes emerging infectious diseases are among the foremost dangers to human health and global security. In January, this concept was underscored by the National Academy of Medicine when they released, “*The Neglected Dimension of Global Security: A Framework to Counter Infectious Disease Crises.*” The authors make the point that we will continue to see outbreaks of infectious diseases, and investing in the appropriate preparedness and response capacity should be a core component of global security, and that the annualized cost of pandemic risk is \$60 billion. The ongoing outbreak of the Zika virus in the Americas once again highlights our need to collectively invest in maternal child health, disease specific interventions and the Global Health Security Agenda.

Conclusion

USAID is committed to addressing the Zika virus outbreak of today and strengthening capacities to ensure that future threats will be rapidly and effectively controlled at their source and before they pose a threat to the global community. This work is being done in close collaboration with our interagency partners. Thank you for the opportunity to submit a statement today and to share the contributions we are prepared to make.

Robert G. Salesses
Deputy Assistant Secretary for Homeland Defense Integration and Defense Support of
Civil Authorities
Department of Defense

Hearing before the
House Committee on Oversight and Government Reform

February 24, 2016

Thank you Chairman Chaffetz, Ranking Member Cummings, and distinguished members of the Subcommittee for the opportunity to provide a statement addressing the Department of Defense internal response to the Zika virus outbreak and our support to the United States Government's Zika virus response efforts. The Department appreciates your continued leadership and commitment to force health protection as well as global health issues.

At the President's direction, the U.S. Government, led by the Department of Health and Human Services (HHS), mobilized to respond to the outbreak of the mosquito-borne Zika virus in the Americas. On February 1, the World Health Organization announced that the recent cluster of neurological disorders and neonatal malformations reported in the Americas constitutes a Public Health Emergency of International Concern. There is a suspected link between this cluster and Zika virus disease. This cluster of microcephaly cases and neonatal malformations raises many questions and concerns for Service members and their families in the affected regions.

Department of Defense Priorities

The Department's first priority in the response is to ensure the health of the force. We are reinforcing best practices for personal protection while enhancing existing programs for mosquito vector surveillance and control to provide community and personal protection on installations and in the field. Control and protection efforts require surveillance equipment and control measures specific for the *Aedes aegypti* mosquito and enhanced training for the Department's personnel and dependents to eliminate mosquito breeding habitats.

In addition, the Department will diagnose and, when required, treat DoD personnel and dependents, with a strong focus on pregnant Service members and their dependents. The Assistant Secretary of Defense for Health Affairs provided Zika virus guidance to DoD medical personnel and will support DoD medical requirements.

The DoD Medical Research and Development enterprise previously established baseline research on development of diagnostic tools and vaccines associated with Dengue, Chikungunya, and Zika (all diseases which are transmitted by the *Aedes aegypti* mosquito). The Armed Forces Pest Management Board (AFPMB), through the Under Secretary of Defense for Acquisition, Technology, and Logistics (AT&L), is assessing personal protection requirements against the mosquito vector and, in coordination with interagency experts, modifying pest management

guidance to the Military Departments and Services to surveil and control mosquitoes on bases and installations. AT&L will support interagency research and development on personal protection equipment and vector control methods and technologies by sharing existing research and development program information associated with the Deployed Warfighter Protection Program managed by the AFPMB.

Finally, the Combatant Commands, in coordination with HHS and the Department of State, will, within current funding and available authorities, and where appropriate, modify their security cooperation plans to support requests for assistance from international partners.

Conclusion

The Department is committed to ensuring the health of the force while addressing the Zika virus outbreak of today and strengthening our capacities to assure that future mosquito borne threats will be rapidly and effectively controlled at their source. Thank you for the opportunity to provide this statement and share the actions we are taking to protect the force and support the interagency response.

To: Dr. Anne Schuchat
Principal Deputy Director
Center for Disease Control and Prevention

From: Rep. Earl L. "Buddy" Carter
Member of Congress (GA-01)

February 24, 2016 Subcommittee on Transportation and Public Assets Hearing
"The Zika Virus: Coordination of a Multi-Agency Response"

Please reply by March 18, 2016 with responses to the following questions and requests:

1. **The Center for Disease Control and Prevention (CDC) is tasked with protecting our nation from the threat of deadly communicable diseases, such as the Zika virus. One of the tools available to the CDC is passenger screening at ports of entry. While passenger screening alone cannot stop the spread of Zika, it is still an effective way to triage travelers who wish to enter the United States. Our first line of defense begins at our borders, and we must ensure that we have the best technology available to screen travelers while protecting those conducting screenings from the risk of transmission.**
 - a. **How is CDC collaborating with the Department of Homeland Security's (DHS) Customs and Border Protection (CBP) at our land, air, and sea ports of entry?**

CDC and its federal partners are carrying out a coordinated response to this public health emergency of international concern. CDC is working in collaboration with other components of the Department of Health and Human Services (HHS), including the Office of the Assistant Secretary for Preparedness and Response (ASPR) and its Biomedical Advanced Research and Development Authority (BARDA), the National Institutes of Health, and the Food and Drug Administration (FDA). Examples of collaborative work include recommendations to reduce the risk of Zika virus through blood transmission and research on sexual transmission, microcephaly, and Guillain-Barre syndrome. We are also working with both private and federal partners to communicate with travelers and health care providers, update travel alerts and clinical guidance, and develop improved mosquito-control methods. CDC is assisting and providing guidance to CBP to help them follow routine protocols for responding to sick travelers. CDC is also working with CBP's Office of Field Operations (OFO) on messaging to the travelling public. CDC has developed and provided OFO with a variety of Zika health advisory posters which OFO is displaying at their model and non-model ports. CDC is working with industry partners and ports of entry to communicate information about Zika prevention and risks.

CDC does not recommend and is not conducting enhanced screening or risk assessment for Zika at US ports of entry or at airports that are gateways from Zika-affected regions of the Caribbean

and Central and South America. Efforts to detect Zika-infected travelers at U.S. ports of entry likely would be inefficient and ineffective. Data show that four in five people with Zika will not have any symptoms. Even when present, the signs and symptoms of Zika virus are nonspecific and occur in many other diseases. It is also difficult to determine which travelers may have been exposed, and of any travelers who might be identified with visible symptoms, very few would actually have Zika virus. Their symptoms would more likely be due to a variety of other illnesses. Finally, Zika is primarily transmitted by the bite of infected *Aedes* mosquitos; there is no evidence it can be transmitted through casual contact or through the air.

2. Several countries, such as Japan, China, and India, are screening passengers for fever at airports. Do the CDC's current screening procedures at airports include checking travelers arriving from affected regions for fever?

Media outlets have reported that several countries (including China, Japan, Nigeria, and Sri Lanka) are screening inbound travelers from Zika-affected areas. CDC does not recommend and is not conducting enhanced screening or risk assessment for Zika at U.S. ports of entry or at airports that are gateways from Zika-affected regions of the Caribbean and Central and South America. Efforts to detect Zika-infected travelers at U.S. ports of entry likely would be inefficient and ineffective. Available data show that four in five people with Zika will not have any symptoms. Even when present, the signs and symptoms of Zika virus also occur in many other diseases. It is also difficult to determine which travelers may have been exposed, and of any travelers who might be identified with visible symptoms, very few would actually have Zika virus. Their symptoms would more likely be due to a variety of other illnesses, including but not limited to other mosquito-borne diseases like chikungunya and dengue. Finally, Zika is primarily transmitted by the bite of infected *Aedes* mosquitos; there is no evidence it can be transmitted through casual contact or through the air.

3. A January 6, 2016 DHS Inspector General's report was critical of the coordination of screening processes between DHS and the Department of Health and Human Services (HHS) during the recent Ebola outbreak. In particular, some travelers that may have been exposed to Ebola did not have their temperatures taken before entering the United States, and screening personnel were not adequately protected.

a. What is CDC doing to address the concerns raised by the Inspector General's Report regarding lack of fever screening and inadequate protection for screening personnel?

Prior to and throughout the Ebola response CDC maintained a collaborative relationship with CBP and other partners. CDC continues coordinating efforts with the DHS Office of Health Affairs and CBP's crisis action teams for public health emergency responses. The safety of CDC and CBP personnel is an utmost priority for the agency. CDC regularly updates guidance for personnel at ports of entry. CDC consistently provides information and training (in the form of

work shift updates, guidance, and infographics) for personnel at ports of entry to safely reduce transmission of infectious diseases; CDC works with CBP to update CBP officers at ports of entry on relevant public health threats as they progress. Pursuant to Recommendation 1 of the Inspector General's report, CDC is working with DHS to establish agreements between the relevant agencies regarding infectious disease protocols at U.S. ports of entry.

4. It is my understanding that the CDC's Emergency Operations Center (EOC) is looking at new technologies that will help protect CDC and CBP screening personnel from direct transmission. How does the CDC intend to pilot these emerging technologies and techniques?

CDC continues to adopt emerging technologies and employ infection control best practices designed to protect its staff, federal agency partners, and the American people from infectious diseases based on their proven and established effectiveness. CDC systematically assesses and improves its practices to increase the safety of its staff, federal, state, local and tribal partners, and the nation.

CDC monitors scholarly publications and reports for relevant research regarding emerging technologies to detect infectious disease. Experts consider available evidence on effectiveness and ease of use, as well as the return on investment of implementing cutting-edge technologies with unproven impact on illness detection in a very broad setting. For example, recently CDC scientists and partners assessed the effectiveness of infrared thermal detection systems for use in airports to minimize contact between first line responders and potentially ill persons. The results of this study indicated that the sensitivity and accuracy of these new tools does not yet match the contact thermometers and could result in many false positives and false negatives in a real-world setting.

5. Does the CDC's EOC have a timeline for when these new screening techniques will be available? Will they be available to remedy the problems outlined by the Inspector General's report on the Ebola outbreak response so that we can be better prepared for the Zika virus?

Emerging technologies must first be evaluated for their effectiveness, reliability, feasibility, and applicability to specific threats before they're adopted for use. When appropriate, CDC will adopt emerging technologies and employ public health best practices to treat and isolate individuals with communicable diseases.

CDC is working with CBP to assist them to follow routine protocols for responding to sick travelers. Available data show that four in five people with Zika will not have any symptoms. Even when present, the signs and symptoms of Zika virus are nonspecific and occur in many other diseases. Many travelers will not be able to confirm whether or not they have been

exposed, and among those travelers who might be identified with visible symptoms, very few would actually have Zika virus. Furthermore, because the virus is not spread through casual contact or the air, interactions between infected passengers and workers does not put workers at increased risk for infection. For these reasons, CDC does not recommend enhanced screening or risk assessment for Zika at U.S. ports of entry.



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Medical and Scientific Department

Lausanne, 29 January 2016

IOC Statement on Zika

Dear Secretary General, dear Chef de Mission,

You will be aware of the Zika virus and its development in the Americas, including in Brazil. Brazil reported its first case in May 2015, and World Health Organisation (WHO) officials now estimate that 1.5 million people have been infected in the country. While most cases result in no symptoms (around 80 per cent), and those people who do get symptoms have them only for two to seven days, there has also been an unusual increase in the number of babies born with microcephaly (birth defect affecting head size and brain development) in Brazil; and the authorities are trying to determine if there is a connection between the two. Indeed, the WHO has announced that it will convene a meeting next Monday to decide if Zika should be treated as a global emergency.

With this in mind, the International Olympic Committee (IOC) is closely monitoring the situation with Zika in Brazil. We are also in close communication with the WHO and the Rio 2016 Organising Committee on this topic. On its side, Rio 2016 is in regular contact with the Brazilian Ministry of Health and the Municipal Health Department, which are the responsible authorities on health issues in Brazil and in Rio. All parties are taking action to address this topic, and are following developments closely.

In this connection, a plan has already been put in place for the Games venues in the lead-up to and at Games time, which will see them inspected on a daily basis in order to ensure that any puddles of stagnant water - where the mosquitos breed - are removed, therefore minimising the risk of athletes and visitors coming into contact with mosquitos. Rio 2016 will also continue to follow the virus prevention and control measures provided by the authorities, and will provide the relevant guidance to Games athletes and visitors.

It is also important to note that the Rio 2016 Games will take place during the winter months of August and September, when the drier, cooler climate significantly reduces the presence of mosquitos and therefore the risk of infection.

In general, the Brazilian authorities are also taking significant steps to deal with Zika, as they have recently announced that over 200,000 members of the armed forces and health workers will be engaged across the country, going from house to house to distribute leaflets and dispense advice about how to combat the mosquitos and the virus.

The current advice to those visiting areas with Zika is:

- All travellers to areas with active Zika transmission should take mosquito bite avoidance measures, during both daytime and night-time hours (but especially during mid-morning and from late afternoon to dusk, when the mosquitos are most active). These measures include wearing appropriate clothing with long trousers and sleeves, and using insect repellents. Travellers should get additional advice from their local health authorities.
- Women who are planning to become pregnant should discuss their travel plans with their healthcare provider, to assess the risk of infection with the Zika virus and receive advice on mosquito bite avoidance measures.
- Although the WHO currently does not recommend any change to travel plans, some national authorities, on a precautionary basis, have recommended that pregnant women should consider avoiding travel to areas where Zika virus transmission is occurring. If travel is unavoidable, or they live in areas where the Zika virus is reported, they should take scrupulous insect bite avoidance measures.

The IOC remains in close contact with the WHO to ensure that we have access to the most up-to-date information and guidance, from now through to Games time. At the same time, NOCs should consult with their national health authorities to get advice and guidance.

We remain confident that there will be a safe environment for successful and enjoyable Olympic Games in Rio de Janeiro.

Yours sincerely,



Prof. Dr. Ugur Erdener
IOC Medical and Scientific Commission Chair



Dr Richard Budgett
IOC Medical and Scientific Director



MEMO

To: Prospective Members of the 2016 U.S. Olympic and Paralympic Delegations

From: Scott Blackmun, CEO

Date: February 10, 2016

Subject: Zika Virus Update

I know that the Zika virus outbreak in Brazil is of concern to many of you. I want to emphasize that it is to us as well and that your well-being in Rio this summer is our highest priority.

We have been in close contact with the U.S. Centers for Disease Control and Prevention, as well as infectious disease specialists with expertise regarding the Zika virus. While a number of unanswered questions remain, as of today we believe the following to be true:

- Men and women can both be infected with the Zika virus. There is no vaccine to prevent Zika infection.
- Approximately 20 percent of people infected with the Zika virus display symptoms. Those symptoms include body aches, a rash and temporary changes in the sclera of the eye (redness in the eye).
- Men and women can get the virus from a certain species of mosquito and from male sexual partners who have been infected.
- Babies of mothers who have been infected with the Zika virus have an increased incidence of a birth defect called microcephaly. It appears that babies may be at risk if the mother becomes infected while she is pregnant or if she becomes pregnant within an unknown timeframe after being infected.
- The Zika virus is not just in Brazil. According to the World Health Organization, the virus is known to circulate in Africa, the Americas, Asia and the Pacific.
- Rapid testing to determine if an individual is infected is expected in the near future.

We are learning more every day and these facts may change. We continue to closely monitor the situation through the CDC and have attached FAQs from the CDC, as well as the IOC's letter regarding Zika dated January 29, 2016.

No matter how much we prepare, however, there will always be risk associated with international competition. Each country, each venue and each discipline will present different risks and require different mitigation strategies. The letter from the IOC details current mitigation approaches to Zika and I encourage you to read it carefully.

We want to be a resource for you and provide you with relevant information from reputable sources like the CDC and the WHO. Please visit TeamUSA.org/RioTravelUpdates for the most up-to-date information.

If you have any questions specific to the Zika virus, I encourage you to contact your personal physician or our delegation's chief medical officer, Dr. Bill Moreau (BillMoreau@usoc.org).

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